United States Department of Agriculture
Natural Resources Conservation Service

National Plant Data Team
August 2012

# Edible Seeds and Grains of California Tribes and the Klamath Tribe of Oregon in the Phoebe Apperson Hearst Museum of Anthropology Collections, University of California, Berkeley

August 2012

*Cover photos:*

*Left: Maidu woman harvesting tarweed seeds. Courtesy, The Field Museum, CSA1835*

*Right: Thick patch of elegant madia (Madia elegans) in a blue oak woodland in the Sierra foothills*

# Acknowledgments

This report was authored by **M. Kat Anderson**, ethnoecologist, U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) and **Jim Effenberger**, **Don Joley**, and **Deborah J. Lionakis Meyer**, senior seed botanists, California Department of Food and Agriculture Plant Pest Diagnostics Center.

Special thanks to the Phoebe Apperson Hearst Museum staff, especially **Joan Knudsen**, **Natasha Johnson**, **Ira Jacknis**, and **Thusa Chu** for approving the project, helping to locate catalogue cards, and lending us seed samples from their collections. We are grateful to **T.J. Ushing** for photographing the seeds and **Steve O'erding** for creating the maps. Appreciation is given to all of the photographers who contributed their photographs of the wildflowers and grasses to this report. Thank you to **Sarah Bridges**, **Doug Goldman**, **Ira Jacknis**, **Joan Knudsen**, and **Gerry Moore** for reviewing an earlier draft of the report.

Editorial and illustrative support was provided by **Lynn Owens**, editor; **Wendy Pierce**, illustrator; and **Suzi Self**, editorial assistant, NRCS National Geospatial Management Center, Fort Worth, Texas.

# Edible Seeds and Grains of California Tribes and the Klamath Tribe of Oregon in the Phoebe Apperson Hearst Museum of Anthropology Collections, University of California Berkeley

## Introduction

California and Oregon Indians relished the taste of many kinds of small seeds and grains, gathered from the inflorescences of wildflowers and grasses. Packed with fiber and protein and loaded with flavor, these served as breakfast cereal, seasoning, snack, hearty porridge, and sustained Indian runners on long journeys. Fringed redmaids (*Calandrinia ciliata* (Ruiz & Pav.) DC), a widespread wildflower of California, had such delicious seeds that they were eaten "like candy" by the Yokuts (Gayton 1948).

Some kinds of seeds are high in fiber, complex carbohydrates, and proteins essential in the prevention of sugar diabetes and other modern diseases. For example, chia (*Salvia columbariae* Benth.) seeds are capable of slowing sugar absorption and decreasing the rate and severity of diabetes (Berzok 2005). Chia seeds were so strength-giving that the Kumeyaay of southern California needed only a small handful kept in the mouth and chewed to sustain one during long journeys on foot (Hedges and Beresford 1986).

These wild seeds were gathered from every kind of environment: chia from the Mojave Desert, annual semaphoregrass (*Pleuropogon*) grains from moist pockets in fog-dripped coastal redwoods, pond-lily (*Nuphar*) seeds from crystal clear freshwater marshes, and biscuitroot (*Lomatium*) fruits in chaparral openings. Today, western wildflowers offer visual sustenance to the hiker and subject matter for the artist, but in former times these plants were the Indian's bread and butter. By knowing the edible qualities of the flora of one's regional territory, California and Oregon Indians exemplified what it was like to truly live in a place-based culture where the local and regional flora becomes part of one's physical, mental, and spiritual make-up.

Edible seeds vary in size from as tiny as a poppy (*Papaver*) seed, to as large as a small sunflower (*Helianthus*) seed and come in many colors—brown, black, gray, beige, tan, red, orange, and mottled. Shapes are diversified: round, oval, crescent-like, angular, orbicular, and cylindrical; some with smooth, while others with irregular edges. The species used were broad in number and formed ingredients in traditional recipes. Imagine a kitchen that was full of plants from the locale—so that one could identify the place by the uniqueness of the cuisine. For instance, the grains of the now endangered Eureka dunegrass (*Swallenia alexandrae* (Swallen) Söderstr. & H. F. Decker) were possibly gathered for food by the Panamint from a limited region in the Eureka Valley of northern Inyo County (see Cat. No. 1–236789a and b). Other kinds of small seeds were widely eaten such as chia and fringed redmaids (figs. 1 and 2).

The California and Oregon grasslands were the most productive breadbasket regions. Millions of pounds of seeds were gathered from the grasslands and vernal pools of the Central Valley; grasslands on serpentine outcrops throughout California and Oregon; the prairies of northern and southern California and Oregon coasts; the meadows of the various mountain ranges; and the cold and warm desert grasslands of the California's interior (Keeler-Wolf et al. 2007). Prior to European arrival, these grasslands were configured with perennial bunchgrasses and a few annual grasses, interspersed with annual and perennial wildflowers (Stromberg et al. 2007). In California, they covered 5.29 million acres (Barbour and Major 1988). Many areas were characterized by high proportions of annual wildflowers and few perennial grasses (Minnich 2008). Other areas, such

**Figure 1** Map of chia use

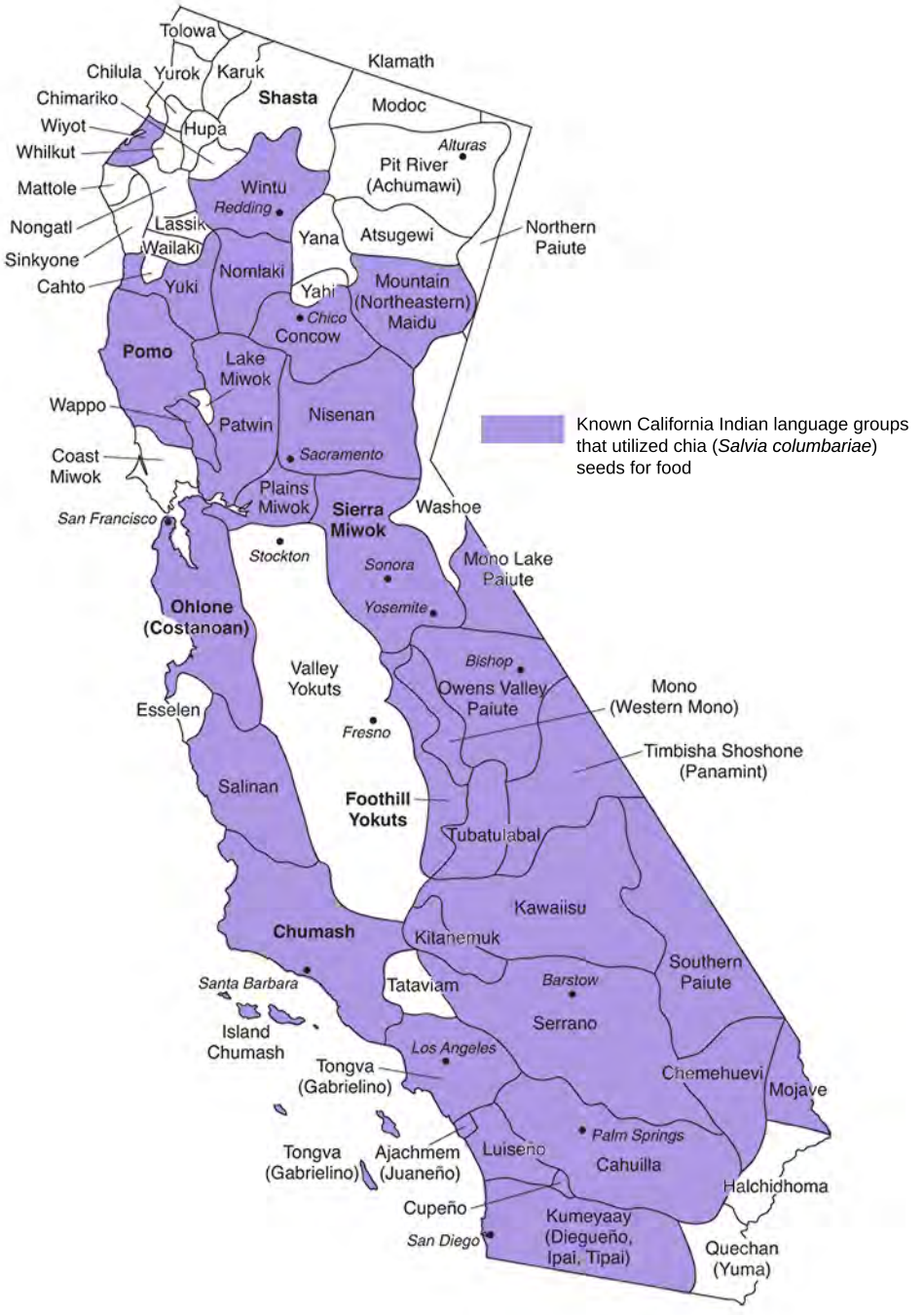
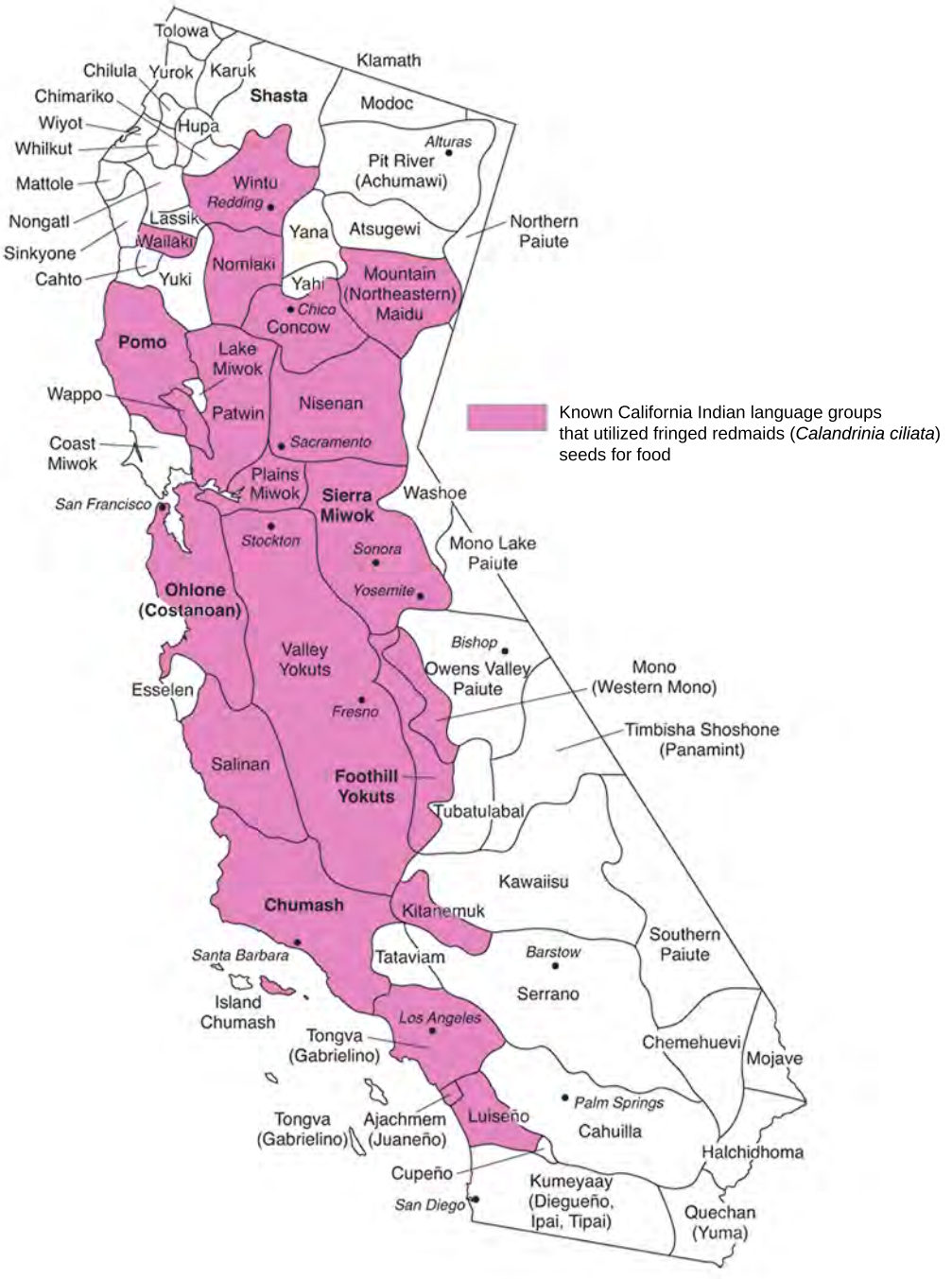


**Figure 2** Map of fringed redmaids use



as mesic coastal prairies, had high percentages of perennial grasses and fewer annual wildflowers (Schiffman 2007). In addition to the grasslands, many woodlands, forests, and riparian corridors were much more open at European contact, providing enough sunlight for numerous kinds of wildflowers and grasses to grow. For example, anthropologist Frank Essene's Lassik consultant told him in 1942 that much of Trinity County, now choked with thick brush, was "almost open prairie" due to Indian burning before white men came (Essene 1942:55).

In many places where wild seeds were gathered, landscapes were tended. Plants were beaten with a seed beater, knocking the seeds into a wide-mouthed basket. In the act of seed beating, native women deliberately scattered seeds into the surrounding areas, acting as seed dispersers (fig. 3). Seeds were also sown, sometimes into burned areas and scratched in with a brush harrow (Anderson 2005a). According to Elizabeth Renfro (1992), the Shasta in northwestern California broadcast seeds, and many Shasta bands practiced controlled burning of areas to clear out undergrowth and encourage the growth of particular plants. While California Indians did not fully domesticate food crops, the saving and sowing of seeds likely caused some genetic changes in the native plants (Anderson and Wohlgemuth 2012).

**Figure 3** A Desert Cahuilla woman collecting seeds with a seed beater

*Courtesy of the Autry National Center/Southwest Museum, Los Angeles, CA, #24,698*

Throughout the Americas, people behaved similarly when it came to the cultivation of wild seeds. For example, the oily seeds of common madia *(Madia elegans* D. Don ex Lindl.) and coast tarweed (*Madia sativa* Molina) were relished by many California Indian tribes and some Oregon tribes, and areas were managed with burning to maintain and increase crops (Boyd 1999; Schenck and Gifford 1952; Anderson 2005a). Coast tarweed was also extensively cultivated for its oily seeds by the indigenous peoples of Chile in South America—changing the species somewhat from its wild state (Sauer 1952). Drucker (1939:9) reported chia was burned for plant improvement by the Cupeño, Mountain Cahuilla, Northern Diegueño (Kumeyaay), and Southern Diegueño (Kumeyaay). The Paiute tribe of Owens Valley broadcast seeds of chia to thicken up

stands and irrigated areas of chia (Steward 1934). We have evidence that chia (although a different species—*Salvia hispanica* L.) was sown and regularly cultivated in ancient Mexico. Mary Elizabeth Parsons reported in 1897 in her book, *The Wild Flowers of California* that "among the Nahua races of ancient Mexico the plant was cultivated as regularly as corn, and was one of their most important cereals" (Parsons 1955:307). Chia exhibits potential features of incipient domestication: self-pollination, seed retention, great variability, condensed seedheads with many seeds, and it thrives in human-disturbed environments.

The diaries of many explorers, missionaries, and gold miners attest to the abundance of these edible wildflowers in the California and Oregon grasslands. Argonaut William Perkins described in 1850: "The plains at this season (the middle of April) are literally covered with flowers. No garden can compare in beauty to the banks of the Estanislao [Stanislaus]. I think I never witnessed such a profusion of colors, and such brilliancy of hues; and this, not confined to small and isolated spots, but the whole country is one immense flower bed. The hills look like gigantic bouquets, and the llanos like a huge Persian carpet" (Morgan and Scobie 1964:148).

While Granville Redmond, John Gamble, and other early California impressionists captured these wildflower carpets in their paintings, it was Grace Hudson that first depicted an Indian presence there in such paintings as "Indian Summer," which shows an Indian woman in a field with seed beater in hand ready to gather the oily seeds of tarweeds (Boynton 1978) (fig. 4).

**Figure 4** Indian Summer, painted by Grace Hudson in 1905. The model for the painting is Eva Scott, a Pomo.

*Courtesy of the Grace Hudson Museum and Sun House Ukiah, CA*

With the establishment of museums around the country, anthropologists launched field expeditions in the late 1800s and early 1900s to study the lifeways of native cultures and purchase materials for museum collections. These collections include such items as plant materials that have not been processed or lightly processed such as edible seeds,

fruits, leaves, mushrooms, and insects; partially processed materials such as pounded acorn flour, basketry coils of split branches or rhizomes, and scraped basketry sticks; and completed items of diverse indigenous cultures such as tumplines, baskets, rod armor, and arrows.

Serious study of California Indian food and other customs began with the creation of the Department and Museum of Anthropology at the University of California, Berkeley, in 1901, and the arrival of Alfred Kroeber as Curator (Jacknis 2004; T. Kroeber 1970). Anthropologists began traveling by horseback and in later times by car to the remote and not so remote reaches of California and into the Klamath Basin of Oregon to collect regalia, weapons, cordage, edible plants and plant parts, and other items of Indian cultures (T. Kroeber 1970). Samuel A. Barrett, Lawrence Dawson, Roland B. Dixon, Edward W. Gifford, Pliny Earle Goddard, Alfred Kroeber, Julian H. Steward, Erminie W. Voegelin, and other anthropologists were interested in collecting edible seeds and documenting their use. They stopped at various Indian homes in towns, rancherias, and reservations to work with many consultants such as Ida Dick (Mono) and Sally Brown and Jim Mateale (Wailaki) (fig. 5). When anthropologists brought back jars of seeds, they did not always identify or record the plants from which the seeds were collected. Thus, on many museum catalogue labels the taxonomic identification is lacking. This report focuses on one facet of the museum collections: edible seeds—collected and accessioned between 1902 and 1975—housed at the Phoebe Apperson Hearst Museum of Anthropology (PAHMA) at the University of California, Berkeley.

**Figure 5** Jim Mateale (Wailaki) and Sally Brown (Wailaki), two of the many Native American consultants that anthropologists worked with to document uses of small seeds and grains

*Photograph courtesy of the Phoebe Apperson Hearst Museum Cat. No. 15–3905*

## Methods

This project was a collaboration between the PAHMA, California Department of Food and Agriculture Plant Pest Diagnostics Center - Seed Science Laboratory (CDFA PPDC–SSL), and U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS).

One hundred thirty-seven seed and plant material specimens were borrowed with permission from the PAHMA and sent to the CDFA PPDC–SSL for identification. (Note: the plant parts other than small seeds, such as berries, tubers, and nuts, are not included in this report). At the laboratory, each specimen (a vial of seeds) was assigned a unique report number, and the reports associated with each number list all the contents in each vial received. Often the seed vials contained—besides the main component of interest—seeds of one to several other plant species. To preserve the integrity of the original samples, efforts to identify the material were based solely on external morphological features. The specimens were compared using light microscopy with seed and fruit reference collections housed at the CDFA PPDC–SSL—a collection in excess of 40,000 specimens (figs. 6 and 7).

**Figure 6 and Figure 7** Part of the vast seed reference collection of the California Department of Food and Agriculture Plant Pest Diagnostics Center - Seed Science Laboratory, Sacramento, CA

**Seed vials**

**Jars of seeds**

Once identified, the main content of each specimen was placed back in the original container or small zip bag and "contaminating" species were placed in individual gelatin capsules (fig. 8). All items for each specimen were placed back in their original container. In total, scientists at the CDFA PPDC–SSL identified more than 169,000 seeds, fruits, and vegetative materials representing 187 taxa from 112 genera. Individuals involved in the identification work—Senior Seed Botanists Deborah Meyer, Jim Effenberger, and Don Joley—represent more than 75 years of combined seed identification experience.

**Figure 8** Example of the main content of a specimen, after identification, placed in one or more individual small zip bags and "contaminating" species placed in individual gelatin capsules

The scientific nomenclature is based on three sources:

- USDA NRCS. 2010. The PLANTS Database (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874–4490
- USDA Agricultural Research Service (ARS) National Genetic Resources Program. *Germplasm Resources Information Network (GRIN)* [Online Database]. National Germplasm Resources Laboratory, Beltsville, MD (http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl)
- The Jepson Manual: Higher Plants of California (Hickman 1993)

This report is divided into two parts. First are the taxonomic identifications of the main component(s) in each seed sample in alphabetical order by common plant family name. All of the wildflower families are presented first, followed by the grass family. Each family section contains a photograph(s) of each plant species and a photograph of the main seed component(s) for each specimen. Second are all of the individual reports issued by the CDFA PPDC–SSL in the appendix of this report.

## Findings

Tribes represented in the PAHMA collections include the Klamath, Kumeyaay, Maidu, Central Sierra Miwok (also known as Me-Wuk) and Southern Sierra Miwok (also known as Miwuk), Modoc, Mohave, Mono (North Fork and Dunlap), Bishop Paiute, Wadatkut Paiute, Panamint, Pomo (Yokaia Rancheria, Asylum Ranch, and in Coyote Valley), Tubatulabal, Wailaki, Chukchansi Yokuts, Ticetcu Yokuts, Yokuts in Drum Valley, Yokuts in Dunlap, Yokuts in Fresno Flats, Yokuts of Santa Rosa Rancheria, Yuki, and Yuma. From the identifications, we know that the plants with edible seeds come from a great variety of vegetation communities from sea level to more than 3,000 meters. For example, the seeds of smooth tidytips (*Layia chrysanthemoides* (DC.) A. Gray) were gathered in coastal grasslands, and the seeds of mountain tarweed (*Madia glomerata* Hook.) were collected at high elevations in forest openings. While most of the seed plants in this report are sun loving, some such as Coast Range mule-ears (*Wyethia glabra* A. Gray), prefer shady sites.

These plants fall within 16 plant families including Amaryllidaceae (Onion Family), Apiaceae (Carrot Family), Asteraceae (Sunflower Family), Boraginaceae (Borage Family), Brassicaeae (Mustard Family), Chenopodiaceae (Goosefoot Family), Fabaceae (Legume Family), Lamiaceae (Mint Family), Loasaceae (Loasa Family), Nymphaeceae (Water-lily Family), Onagraceae (Evening Primrose Family), Poaceae (Grass Family), Polygonaceae (Buckwheat Family), Portulacaceae (Purslane Family), Ranunculaceae (Buttercup Family), and Valerianaceae (Valerian Family). The family that represents the greatest diversity of genera used for food is Asteraceae. Being a very large family, this is not surprising.

By 1901, native people in many areas were no longer eating their traditional foods, or eating them to a limited extent. Thus, the seed collections at the PAHMA are a small subset of the great diversity of edible seeds gathered prior to European contact. Those plants that survived and thrived with new kinds of disturbance on the land—plowing, livestock grazing, and timber-cutting—were readily available and still widely eaten. These were reflected in the collections showing up multiple times among various tribes, such as fringed redmaids, chia, and tarweeds. Additionally, with the grazing of livestock, exotic grasses and wildflowers were brought into California both deliberately, through direct seeding for livestock feed, and unintentionally, through seeds carried in hay bales, folds of textiles, hooves of livestock, and a thousand other means (Gerlach 1998; Bossard et al. 2000). Many of these plants came from parts of Europe with a Mediterranean climate, very similar to the climate of California. Thus, they took hold and spread rapidly, growing in association with and also overtaking the native plants.

As California and Oregon Indian women scoured the hillsides and valleys to gather the seeds of native plants, the broad sweeping motion of their seed beaters captured not only the seeds they were after, but also the seeds of other native and nonnative plant species growing in the vicinity. The fact that Native Americans collected seeds of one species and captured the seeds of other unwanted species in the process tells us that the seeds they were after often did not occur in pure monocultures, but rather in association with other native and nonnative wildflowers and grasses. Within the jars sold to anthropologists, these unwanted seeds were mixed in with the desired seeds and presumably separated later. The CDFA PPDC–SSL scientists identified these “contaminants” as well. When these collections are analyzed in detail with accompanying card catalogue entries, unpublished and published field notes, and oral interviews, researchers are provided with information relevant to the reconstruction of historic landscapes and historic land uses (Anderson 2001). Anthropological collections, when they are inventoried and assembled with other kinds of information, reveal powerful insights into the past flora and fauna and former human relationships with the biota of California and Oregon (Anderson 2005a; 2005b).

As mentioned earlier, some of these seeds were from nonnative plants such as alfalfa (*Medicago sativa* L.), brome fescue (*Vulpia bromoides* (L.) Gray), filaree (*Erodium* sp.), nit grass (*Gastridium phleoides* (Nees & Meyen) C.E. Hubbard), perennial ryegrass (*Lolium perenne* L.), disc mayweed—also known as pineapple-weed (*Matricaria discoidea* DC.), rat-tail fescue (*Vulpia myuros* (L.) C.C. Gmel.), shepherd's purse (*Capsella bursa-pastoris* (L.) Medik.), and soft brome (*Bromus hordeaceus* L.). When certain nonnative plants replaced many of the native plants, Indians shifted their diets to embrace these new plants. These include wild oat and slender oat (*Avena fatua* L. and *A. barbata* Pott ex Link) for grains, and wild mustards (*Brassica* spp.) and filaree (*Erodium* spp.) for greens. The ecologists John Randall and Marc Hoshovsky (2000:322–23) state that today, more than 200 years after the first invasive introductions, alien plant problems are widespread and severe, posing threats to biodiversity second only to direct habitat loss and fragmentation.

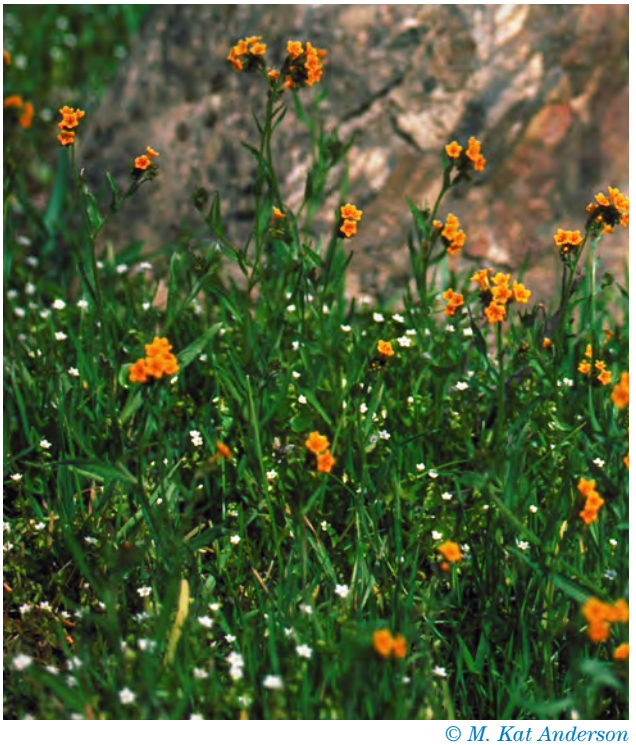
From all the seed and plant materials examined from the PAHMA collections, only those of edible small seeds and grains are reported here. Each entry includes the PAHMA specimen catalogue number and the CDFA PPDC–SSL report number.

## Borage Family (Boraginaceae)

### Fiddleneck

Fiddlenecks (*Amsinckia* spp.) are annual wildflowers with orange to yellow flowers and known by their spike-like flowers with coiled tips. From the historic literature, at least two kinds were valued for their edible seeds. The Atsugewi parched the seeds of tarweed fiddleneck (*Amsinckia lycopsoides* Lehm) and pounded them into a flour and made into cakes and eaten uncooked (Garth 1953). The Chumash ground and toasted Menzies' fiddleneck (*A. menziesii* (Lehm.) A. Nelson & J.F. Macbr.) seeds, which were reputed to have a good flavor (Timbrook 2007) (fig. 9).

**Figure 9** Menzies' fiddleneck (*Amsinckia menziesii)*



*© M. Kat Anderson*

**Figure 10** In July 1907, Samuel A. Barrett collected "uncleaned and unseparated seeds of six different kinds" from the Yuki in Round Valley. There are four main components of this seed sample identified: fiddleneck, possibly Menzies' fiddleneck (*Amsinckia menziesii*) (bottom left), California buttercup (*Ranunculus californicus*) (bottom middle), smooth tidytips (*Layia chrysanthemoides*) ray cypselae enclosed in bracts (bottom right), disk cypselae (top right), and shortspur seablush (*Plectritis congesta* (top left) (CDFA Report No. 3479).


*Cat. No. 1–11969*

**Popcornflower**

Rusty popcornflower (*Plagiobothrys nothofulvus* (A. Gray)) covers dense patches of ground in grasslands and open woodlands with white annual flowers that look like snow (fig. 11). According to written sources, their seeds were an important food to the Nisenan and the North Fork Mono (Duncan 1964; Anderson 2005a). The Yuki parched the seeds of fulvous popcornflower (*P. fulvus* (Hook. & Arn.) I.M. Johnst. var. *campestris* (Greene) I.M. Johnst.) with oak-bark coals and when prepared thus, tasted much like that of popcorn (Chesnut 1974).

**Figure 11** Rusty popcornflower (*Plagiobothrys nothofulvus*)

*© 2003 Gary A. Monroe*
*USDA–NRCS PLANTS Database*

**Figure 12** Alfred Kroeber collected nutlets from the Chukchansi in January of 1904 and recorded them as a "foodstuff." These nutlets are of a *Plagiobothrys*, possibly rusty popcornflower, *Plagiobothrys nothofulvus* (CDFA Report No. 3748).


*Cat. No. 1–4032 (1 of 2)*

**Figure 13** Alfred Kroeber collected nutlets from the Chukchansi in January of 1904 and recorded them as a "foodstuff." These nutlets are of a *Plagiobothrys*, possibly rusty popcornflower, *Plagiobothrys nothofulvus* (CDFA Report No. 3749).


*Cat. No. 1–4032 (2 of 2)*

## Buckwheat Family (Polygonaceae)

**Knotweed**

In 1897, Coville recorded that the Klamath gathered the seeds of Douglas' knotweed (*Polygonum douglasii* Greene), ground and parched them, and made a dry meal or pinole (fig. 14). The ground, parched seeds were also mixed with water and boiled to make porridge. Samuel A. Barrett came to the Klamath Reservation a decade later and collected *Polygonum* seeds for the PAHMA, but these have been impossible to identify to species level.

**Figure 14** Douglas' knotweed (*Polygonum douglasii*)

**Figure 15** Roland B. Dixon collected seeds among the Maidu and labeled them as "food sample." The specimen consists of fruits of two knotweeds, *Polygonum* spp. (CDFA Report No. 3500).


*Cat. No. 1–7406*

**Figure 16** Seeds were used for food by the residents of the Klamath Reservation, Oregon. Collections were made by Samuel A. Barrett in 1907. The specimen consists of a mixture of fruits with accessory structures of knotweed (*Polygonum* sp.) and seeds of blazingstar (*Mentzelia* sp., not shown) (CDFA Report No. 3472).


*Cat. No. 1–12787*

**Dock**

Different kinds of docks (*Rumex* spp.) formed an important source of edible seeds and greens. From the historic literature we know that the Kawaiisu parched the seeds of canaigre dock (*Rumex hymenosepalus* Torr.) with hot coals, pounded them into flour, added water, and cooked them to the consistency of thick gravy. Even the vast fields of the weedy exotic curly dock (*R. crispus* L.) were valued by some tribes for their edible seeds such as the Ohlone, Kawaiisu, Northern Paiute, and Yuki (Bocek 1984; Zigmond 1981; Fowler 1989; Chesnut 1974). The Northern Paiute soaked the seeds in water, pounded them into flour, and baked the dough in the sand. The Klamath ate the seeds of alpine sheep sorrel (*R. paucifolius* Nutt.) and willow dock (*R. salicifolius* Weimn.) (Coville 1897). An additional edible species—western dock (*R. aquaticus* L. var. *fenestratus* (Greene) Dorn, formerly *R. occidentalis* S. Watson) was collected on the Klamath Reservation (fig. 17).

**Figure 17** Western dock (*Rumex aquaticus* var. *fenestratus)*

*William and Wilma Follette*
*USDA–NRCS PLANTS Database/USDA NRCS 1992*
*From: Western Wetland Flora: Field Office Guide to Plant Species*

**Figure 18** Samuel A. Barrett collected seeds (*nutak*) from the Klamath Reservation in 1907. This is a mixture of the fruits of western dock, *Rumex aquaticus* var. *fenestratus* (right) and the florets of pale false mannagrass, *Torreyochloa pallida* var. *pauciflora* (left) (CDFA Report No. 3476).


*Cat. No. 1–12709*

## Buttercup Family (Ranunculaceae)

### Buttercup

Tasting similarly to parched corn, buttercup seeds from at least two *Ranunculus* species (*R. occidentalis* Nutt. and *R. californicus* Benth.) were eaten by some tribes in pre-contact California, according to written sources. The Sierra Miwok and Nisenan ate the seeds of *R. californicus*, and the Indians of Mendocino County, including the Pomo, ate the seeds of *R. occidentalis* (Moerman 1998). A popular way to eat the seeds was to parch or toast them, grind them into flour, and eat them as pinole. Another way to eat the seeds of *R. californicus* was to toast them in a toasting basket, pop them open like popcorn, grind them into flour and eat them as pinole, as was done by the Salinan (Immel 2007). The PAHMA collections house *R. californicus* only (fig. 19).

**Figure 19** California buttercup (*Ranunculus californicus*)

*© 2004 George W. Hartwell*

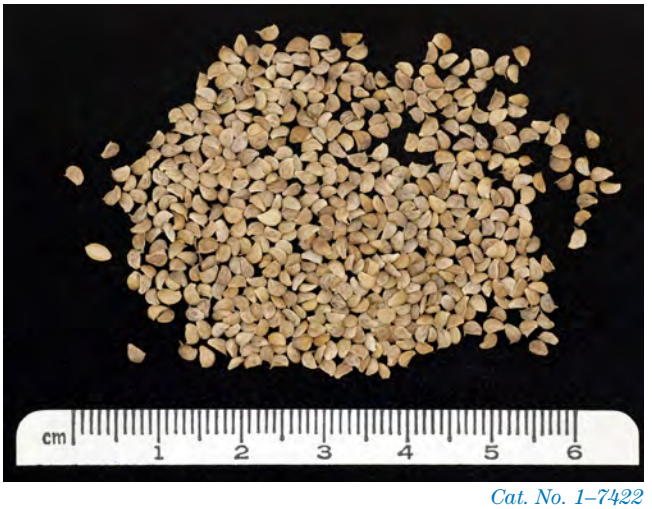
**Figure 20** Seeds were collected from the Pomo of Yokaia Rancheria and identified as California buttercup, *Ranunculus californicus* (CDFA Report No. 3743).


*Cat. No. 1–2898 (1 of 2)*

**Figure 21** Seeds were collected from the Pomo of Yokaia Rancheria and identified as California buttercup, *Ranunculus californicus* (CDFA Report No. 3744).

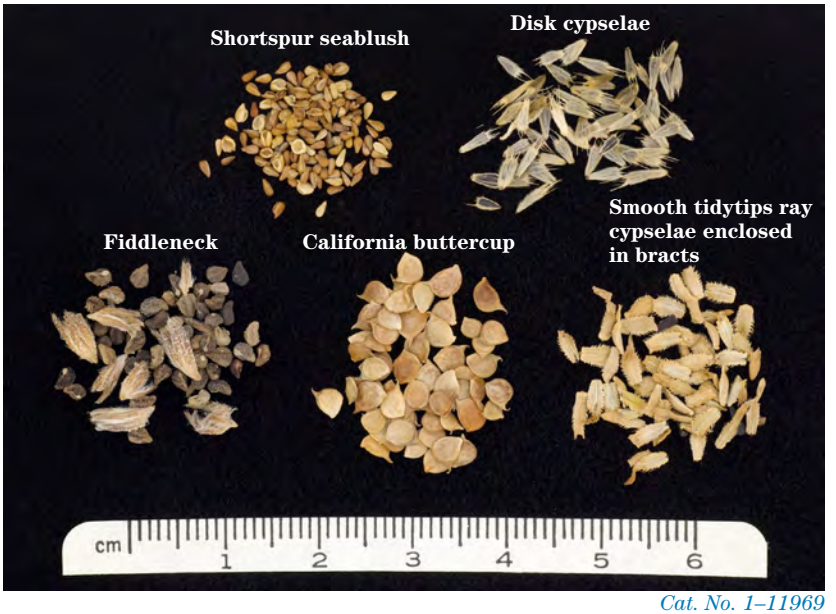

*Cat. No. 1–2898 (2 of 2)*

**Figure 22** Roland Dixon collected these seeds from the Maidu and labeled them as "a food sample." These are identified as California buttercup, *Ranunculus californicus* (CDFA Report No. 3758).



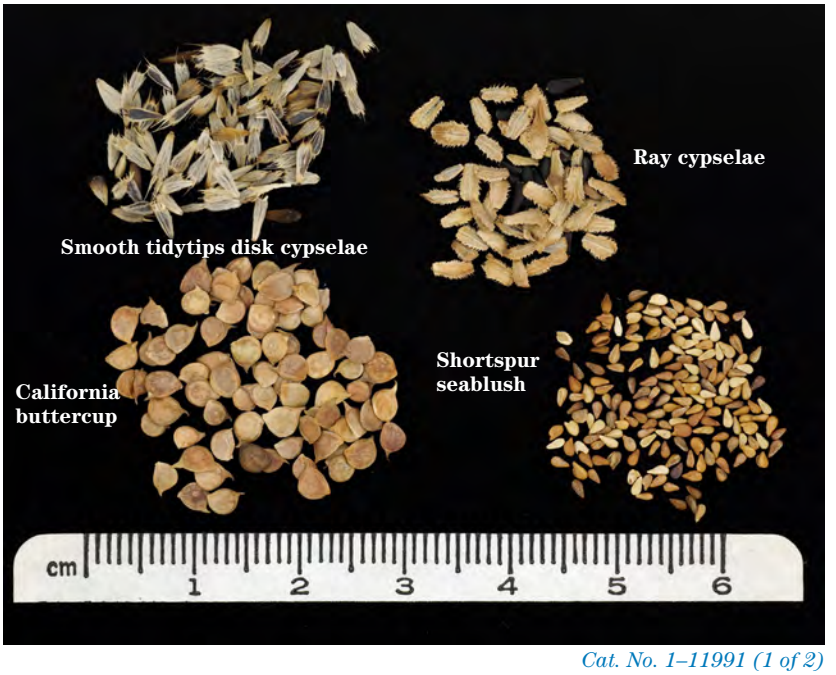

*Cat. No. 1–7422*

**Figure 23** In July 1907, Samuel A. Barrett collected "uncleaned and unseparated seeds of six different kinds" from the Yuki at Round Valley. There are four main components of this seed sample identified: fiddleneck, possibly Menzies' fiddleneck (*Amsinckia menziesii*) (bottom left), California buttercup (*Ranunculus californicus*) (bottom middle), smooth tidytips (*Layia chrysanthemoides*) ray cypselae enclosed in bracts (bottom right) and disk cypselae (top right), and shortspur seablush (*Plectritis congesta*) (top left) (CDFA Report No. 3479).



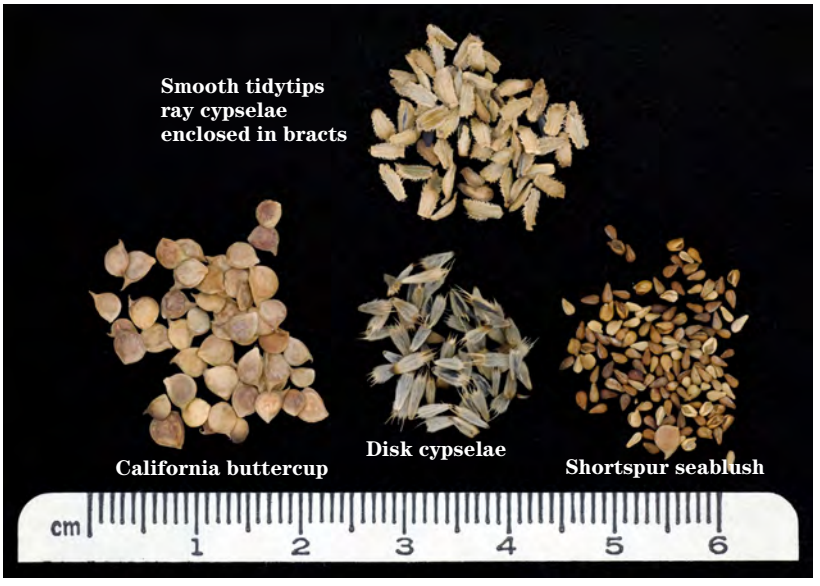

*Cat. No. 1–11969*

**Figure 24** In July 1907, Samuel A. Barrett collected seeds of "various kinds" that were prepared by being "parched." These were collected from the Yuki at Round Valley. There were three main components of this seed mixture identified: shortspur sea-blush (*Plectritis congesta*) (bottom right), California buttercup (*Ranunculus californicus*) (bottom left), and smooth tidytips (*Layia chrysanthemoides*) disk cypselae (top left) and ray cypselae, most enclosed in bracts (top right) (CDFA Report No. 3762).




*Cat. No. 1–11991 (1 of 2)*

**Figure 25** In July 1907, Samuel A. Barrett collected seeds of "various kinds" that were prepared by being "parched." These were collected from the Yuki at Round Valley. The three three main components of this seed mixture are shortspur seablush (*Plectritis congesta*) (bottom right), California buttercup (*Ranunculus californicus*) (bottom left), and smooth tidytips (*Layia chrysanthemoides*) ray cypselae enclosed in bracts (top) and disk cypselae (bottom middle) (CDFA Report No. 3763).




*Cat. No. 1–11991 (2 of 2)*

**Figure 26** In 1907, Samuel A. Barrett collected buttercup seeds (*to'ka*) from the Wailaki in Round Valley. This specimen is a mixture of California buttercup (*Ranunculus californicus*) and shortspur seablush (*Plectritis congesta*) (CDFA Report No. 3465).


*Cat. No. 1–12078*

## Carrot Family (Apiaceae)

### Biscuitroot

All flowers in the carrot family arise from a common point, on pedicels, like rays of an umbrella. *Lomatium* species are known for their edible greens and roots, but the Pomo also ate the fruits of two species. Goodrich, Lawson, and Parrish Lawson (1980) recorded one of these as "bigseed biscuitroot" (*Lomatium macrocarpum* (Nutt. ex Torr. & A. Gray) J. M. Coult. & Rose) used by the Kashaya Pomo to flavor teas and pinole. Samuel A. Barrett collected fruits of fernleaf biscuitroot (*L. dissectum* (Nutt.) Mathias & Constance) from the Pomo and recorded their use as a food (fig. 27).

**Figure 27** Fernleaf biscuitroot (*Lomatium dissectum*)

*© 2002 Gary A. Monroe*
*USDA–NRCS PLANTS Database*

**Figure 28** Seeds used as food by the Pomo of Yokaia Rancheria, 7 miles south of Ukiah. Collections by Samuel A. Barrett. The specimen consists of fruits and plant fragments of fernleaf biscuitroot (*Lomatium dissectum*) (CDFA Report No. 3402).


*Cat. No. 1–2906*

## Wild carrot

Wild carrot, also known as anise, caraway, yampah or ipos laced wet meadows, streamsides, grasslands, and pine groves by the millions (fig. 29). Coming from the same family as our store-bought carrots, these plants were widely valued for their edible tubers in different parts of California. Additionally, seeds of two species, Kellogg's yampah (*Perideridia kelloggii* (A. Gray) Mathias) and Gairdner's yampah (*P. gairdneri* (Hook. & Arn.) Mathias ssp. *gairdneri*) were eaten by the Pomo (Chesnut 1974) and *P. kelloggii* is substantiated in the PAHMA collections. The seeds of Kellogg's yampah were also eaten by the Yuki (Barrett 1952; fig. 33).

**Figure 29** Flowers of Kellogg's yampah (*Perideridia kelloggii*)

*© 2007 Neal Kramer*

**Figure 30** Ethnobotanical seeds were collected in 1902 from the Pomo at Yokaia Rancheria (7 miles south of Ukiah) by Samuel A. Barrett. The specimen consists primarily of mericarps of yampah (*Perideridia* sp.), possibly Kellogg's yampah, *Perideridia kelloggii* (CDFA Report No. 3398).


*Cat. No. 1–2893*

**Figure 31** Ethnobotanical seeds used for food by the Pomo were collected in 1902 at Yokaia Rancheria (7 miles south of Ukiah) by Samuel A. Barrett. These are mericarps of yampah (*Perideridia* sp.), possibly Kellogg's yampah, *Perideridia kelloggii*, (CDFA Report No. 3400).


*Cat. No. 1–2902a (1 of 2)*

**Figure 32** Ethnobotanical seeds were used for food by the Pomo collected in 1902 at Yokaia Rancheria (7 miles south of Ukiah) by Samuel A. Barrett. The specimen consists primarily of mericarps of yampah (*Perideridia* sp.), possibly Kellogg's yampah, *Perideridia kelloggii* (CDFA Report No. 3399).


*Cat. No. 1–2902b (2 of 2)*

**Figure 33** Anise seeds were used for food by the Yuki. They were collected by Samuel A. Barrett in 1907, in Round Valley. These are mericarps of yampah (*Perideridia* sp.), possibly Kellogg's yampah, *Perideridia kelloggii* (CDFA Report No. 3401).


*Cat. No. 1–11917*

## Evening Primrose Family (Onagraceae)

**Willowherb**

Based on written sources, at least two kinds of willowherbs (*Epilobium* spp.) were gathered for food. The Sierra Miwok gathered the seeds of Torrey's willowherb, *Epilobium torreyi* (S. Watson) Hoch & P.H. Raven [formerly *Boisduvalia stricta* (A. Gray) Greene] (Barrett and Gifford 1933). The Pomo and the Sierra Miwok gathered the seeds of denseflower willowherb (*E. densiflorum* (Lindl.) Hoch & P.H. Raven formerly *B. densiflora* (Lindl.) Wats.) for food (figs. 34 and 35) (Chesnut 1974; Barrett and Gifford 1933).

**Figure 34** Denseflower willowherb *(Epilobium densiflorum)*

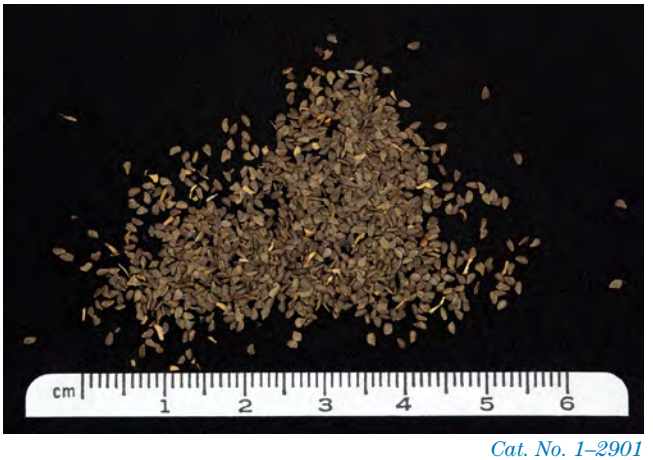
*© 2009 Mary Winter*

**Figure 35** Close-up of the flowering head of denseflower willowherb (*Epilobium densiflorum*)

*© 2009 Mary Winter*

The Pomo made a type of bread out of denseflower willowherb seeds and also ate them as pinole (Chesnut 1974; Barrett 1952). The Miwok parched, pulverized, and dried the seeds for food (Barrett and Gifford 1933). In 1934, Leslie Haskin (1934:229) described the plant's edible seeds: "The seeds which are numerous were gathered for food by the Indians. They are small, but rich and meaty, with somewhat the taste and consistency of flax-seed, and are no doubt quite nourishing." In making collections for the PAHMA, Samuel Barrett substantiated the use of denseflower willowherb seeds for food among the Pomo in 1902, and Alfred Kroeber substantiated the use of these seeds for food among the Chukchansi in 1904 (figs. 36 and 37).

**Figure 36** Seeds were used for food by the Pomo of Yokaia Rancheria, 7 miles south of Ukiah. Collections were made by Samuel A. Barrett in 1902 and labeled as ethnobotanical seeds—*Boisduvalia densiflora*. The main component of the sample is fruit of denseflower willowherb, *Epilobium densiflorum* (formerly *Boisduvalia densiflora*) (CDFA Report No. 3464).




*Cat. No. 1–2901*

**Figure 37** In January of 1904, Alfred Kroeber collected seeds from the Chukchansi in Madera County. The specimen is a mixture of seeds of denseflower willowherb (*Epilobium densiflorum)* (on the right) and winecup clarkia (*Clarkia purpurea)* (on the left) (CDFA Report No. 3747).


*Cat. No. 1–4026*

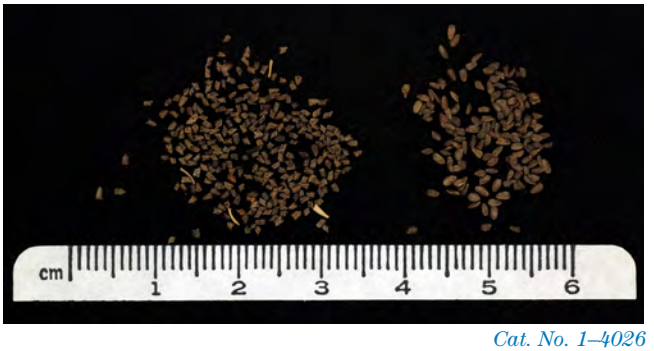
### Farewell-to-spring

At least seven different kinds of farewell-to-spring (the *Clarkias*) were gathered for their edible seeds in various parts of California according to the historical literature. Four species are in the PAHMA collections, including winecup clarkia (*Clarkia purpurea* (W. Curtis) A. Nelson & J.F. Macbr.) (fig. 38), twolobe clarkia (*C. biloba* (Durand) A. Nelson & J.F. Macbr.), diamond clarkia (*C. rhomboidea* Dougl. ex Hook.), and elegant clarkia (*C. unguiculata* Lindl.). The *Clarkias* are easy to grow, and many cultivated varieties have been developed from our native species.

**Figure 38** Winecup clarkia (*Clarkia purpurea*)

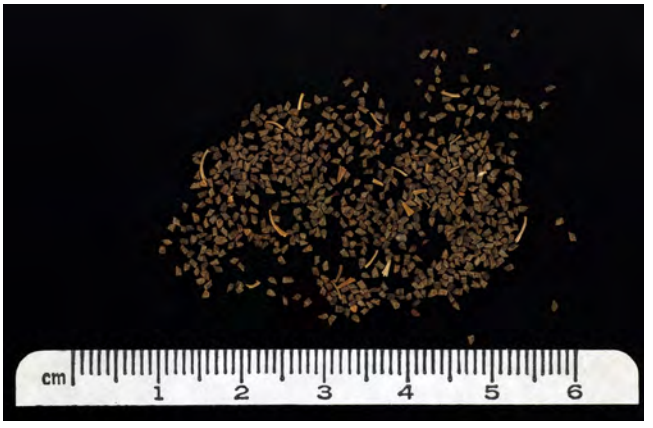
*© 2008 Neal Kramer*

**Figure 39** In January of 1904, Alfred Kroeber collected seeds from the Chukchansi in Madera County. These are a mixture of seeds of winecup clarkia, *Clarkia purpurea*, (on the left) and seeds of denseflower willowherb, *Epilobium densiflorum* (on the right) (CDFA Report No. 3747).




*Cat. No. 1–4026*

**Figure 40** Alfred Kroeber acquired the seeds of winecup clarkia (*Clarkia purpurea*) from the Chukchansi in January of 1904 (CDFA Report No. 3752).




*Cat. No. 1–4043*

**Figure 41** Small angular light brown seeds were used as food by the Sierra Miwok of Chicken Ranch, 1.5 miles west of Jamestown, Tuolumne County. The seeds that were collected by Samuel A. Barrett in 1906 are identified as winecup clarkia, *Clarkia purpurea* (CDFA Report No. 3504).


*Cat. No. 1–10178*

**Figure 42** Capsules and stems were collected by Samuel A. Barrett in 1906 among the Sierra Miwok of Chicken Ranch, 1.5 miles west of Jamestown, Tuolumne County. He said on the catalogue card: "Foodstuff; seed pods are gathered in this manner and allowed to dry and shell out." This specimen is identified as clarkia fruits, possibly winecup clarkia (*Clarkia purpurea*) (CDFA Report No. 3475).


*Cat. No. 1–10196*

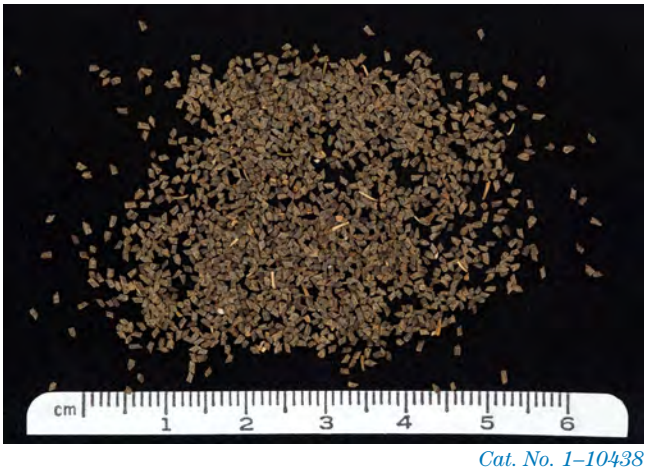
**Figure 43** In 1906, Samuel A. Barrett recorded fine, angular seeds gathered by the Southern Sierra Miwok of Wawona for foodstuff—and collected specimens. These were a mixture of seeds of winecup clarkia (*Clarkia purpurea*) (on the left) and seeds of denseflower willowherb (*Epilobium densiflorum*) (on the right) (CDFA Report No. 3505).


*Cat. No. 1–10249*

**Figure 44** Small, angular, light brown seeds were used as food by the Sierra Miwok, at Big Creek, 2 miles northeast of Groveland, Tuolumne Co. Seeds were collected by Samuel A. Barrett in 1906. The main component of the seed sample is winecup clarkia (*Clarkia purpurea*), although the sample also contains another clarkia, possibly twolobe clarkia (*Clarkia biloba*) (CDFA Report No. 3506).

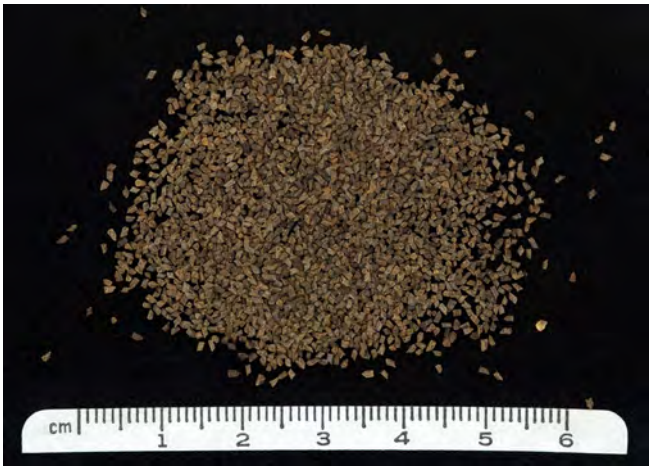

*Cat. No. 1–10310*

**Figure 45** In 1906, Samuel A. Barrett acquired samples of "ethnobotanical" angular seeds from the Chukchanci Yokuts on Picayune Rancheria in Madera County. This seed mixture contained four species of clarkia: winecup clarkia (*Clarkia purpurea*) is the primary component with twolobe clarkia (*Clarkia biloba)*, diamond clarkia (*Clarkia rhomboidea*), and elegant clarkia (*Clarkia unguiculata*) as minor components (CDFA Report No. 3508).




*Cat. No. 1–10438*

**Figure 46** In 1906, Samuel A. Barrett acquired a "foodstuff" sample of angular seeds from the Chukchanci Yokuts on Picayune Rancheria in Madera County. They were from wine-cup clarkia (*Clarkia purpurea*) (CDFA Report No. 3507).



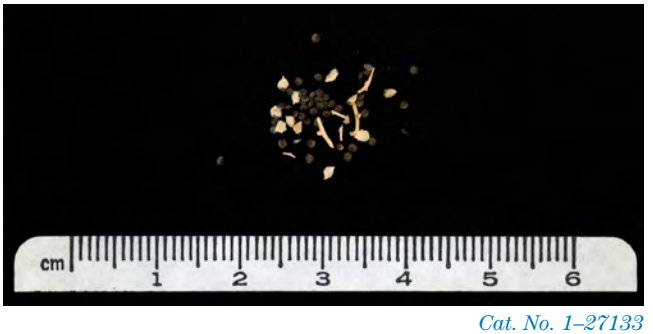

*Cat. No. 1–10462*

## Goosefoot Family (Chenopodiaceae)

### Saltbush

According to written sources, different species of *Atriplex* seeds were eaten by the Cahuilla, Owens Valley Paiute, and other tribes (Colville 1892; Barrows 1967). The Cahuilla pounded the seeds into flour and cooked them with salt and water (Barrows 1967).

**Figure 47** Edward W. Gifford collected the "winnowed" seeds of *Av'a* from the Yuma on the Yuma Reservation in San Diego. He recorded the species as "*Atriplex* sp. *centifoemis.*" These are indeed seeds and fruiting bracts of saltbush (*Atriplex* sp.), but the species determination was not made (CDFA Report No. 3768).




*Cat. No. 1–27133*

## Legume Family (Fabaceae)

### Large leather-root

Large leather-root also known as just "leather root" (*Hoita macrostachya* (DC.) Rydb.) grows along streams, marshes, and spring-moist places throughout the California Floristic Province (fig. 48). No accounts of uses of the plant for seeds were found from written sources. There is documentation of use among the Pomo in the PAHMA collections.

**Figure 48** Leather-root (*Hoita macrostachya*)

*© 2003 Michael Charters*

**Figure 49** Samuel A. Barrett collected one jar of the seeds from the Pomo on Yokaia Rancheria in 1902 and documented them as a "footstuff." These are the seeds of leather-root (*Hoita macrostachya*) (CDFA Report No. 3483).


*Cat. No. 1–2909*

## Loasa Family (Loasaceae)

### Blazingstar

The Washoe and Kawaiisu gathered the seeds of bushy blazingstar (*Mentzelia dispersa* S. Watson) and lightly roasted them, pounded them into a fine flour, and added water to make a substance that tasted like peanut butter (fig. 50) (Anderson 2005a; Zigmond 1981). They are still gathered today (Anderson 2005a). Many tribes ate the seeds of whitestem blazingstar (*Mentzelia albicaulis* (Hook.) Torr. & A. Gray) including the Cahuilla, Kawaiisu, Klamath, Northern Paiute, and Tubatulabal (fig. 51) (Bean and Saubel 1972; Zigmond 1981; Colville 1897; Fowler 1989; Voegelin 1938). From the PAHMA collections, we also know that the Klamath ate the seeds of *M. dispersa* (fig. 53) and the Bishop Paiute possibly ate the seeds of *M. albicaulis* (fig. 54).

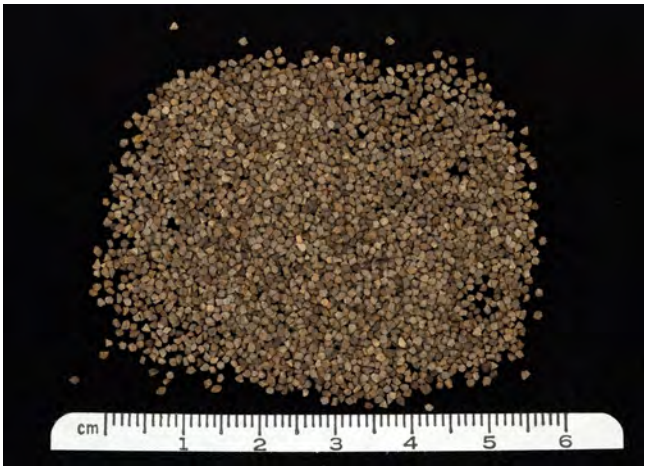
**Figure 50** Nevada blazingstar (*Mentzelia dispersa*)

*© 2000 Gary A. Monroe*
*USDA–NRCS PLANTS Database*

**Figure 51** Whitestem blazingstar (*Mentzelia albicaulis*)

*© Gary A. Monroe*
*USDA–NRCS PLANTS Database*

**Figure 52** Samuel A. Barrett collected the seeds on the Klamath Reservation in Oregon in 1907. These seeds are from blazingstar (*Mentzelia* sp.) (CDFA Report No. 3509).

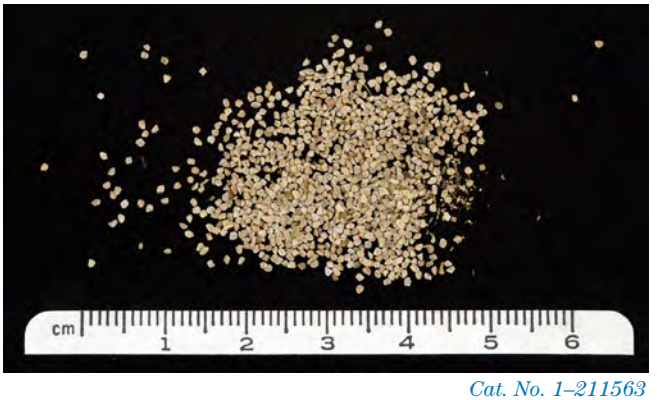



*Cat. No. 1–12794*

**Figure 53** Small angular brown seeds were used for food on the Klamath Reservation, Oregon. Samuel A. Barrett collected them in 1908. The primary component of the seed sample is bushy blazingstar, also known as entire-leaf mentzelia (*Mentzelia dispersa*) with a secondary component of an undetermined species of *Mentzelia* (CDFA Report No. 3510).


*Cat. No. 1–14110*

**Figure 54** Lawrence E. Dawson collected the seeds of *kuha* in August of 1958, used by the Paiute of Bishop, in Inyo County. These are the seeds of blazingstar (*Mentzelia* sp.), possibly whitestem blazingstar (*Mentzelia albicaulis)* (CDFA Report No. 3482).




*Cat. No. 1–211563*

## Mint Family (Lamiaceae)

### Chia and Sage

The nutlets of chia (*Salvia columbariae* Benth.) (fig. 55), commonly referred to as 'seeds,' were gathered in large quantities and widely eaten over more than half the State of California (fig. 1). Nutlets of thistle sage (*Salvia carduacea* Benth.) and white sage (*Salvia apiana* Jeps.) were used in similar ways (figs. 56, 57, and 58). V.K. Chesnut (1974:384) reported of chia in 1902 that "A remnant of 6 or 7 pounds of the minute gray seeds of this plant was found in the possession of a Numlaki [Nomlacki] squaw, who had gathered them in Tehama County, in the Sacramento Valley." Chia seeds were gathered in many plant community types including oak woodlands, chaparral, coastal scrub, creosote bush scrub, and valley grasslands. Often a beverage was made by mixing the seeds with cold water and sometimes with salt.

**Figure 55** Chia (*Salvia columbariae*)

**Figure 56** Thistle sage (*Salvia carduacea*)



**Figure 57** Flowers of white sage (*Salvia apiana*)

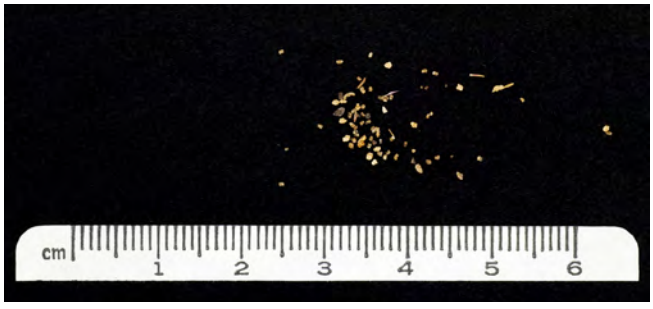
**Figure 58** White sage (*Salvia apiana*)



Anthropologist Edward Gifford first recorded the harvesting and processing of chia among the North Fork Mono in 1932: "*Chats* or chia seed *(S. columbariae)* was gathered with a seed beater and a seed burden basket, and parched before pulverizing in a bedrock mortar. It was eaten as a thick, cold soup, usually with pinches of dry meal of some other sort. Nowadays pinches of pulverized home grown wheat are eaten with *chats*" (Gifford 1932:23).

Like many other traditional foods, chia is not as abundant as it used to be: "Chia seeds were a highly esteemed food once considered abundant [by the Serrano], but now increasingly hard to find in the study area" (Lerch 2002:35). Erminie Voegelin commented that small seeds were regarded as something of delicacy by 1938, but that occasionally they were gathered in large quantity—such as the Kawaiisu bringing a 10-pound flour sack of chia seeds and offering them for sale in 1933 (Voegelin 1938:18). Chia was eaten by many other tribes such as some of the Foothill Yokuts cultural groups (Chukchansi, Gashowu, and Wukchumni) (Curtis 1924:157). The Pomo, Nomlaki, Owens Valley Paiute, Southern Paiute, Chemehuevi, Timbisha Shoshone, Tongva, Cahuilla, and Kumeyaay ate chia seeds (Barrett 1952; Chesnut 1974; Steward 1933; Fowler 1986; Johnston 1962:33; Bean and Saubel 1972; Zigmond 1981; Hedges and Beresford 1986). The Luiseño ate them, and they were parched by adding embers and shaking the mixture in a basketry tray and were then ground into meal (Curtis 1926:7). The Tubatulabal ate chia seeds that were pounded in a pit or portable mortar, mixed with cold water, and made into a thick gray-colored gruel that was drunk for refreshment, "like lemonade" (Voegelin 1938:15, 18). The seeds were a primary food of the Ohlone and served in pinole (Bocek 1984:253). *Salvia columbariae* seeds were an important ingredient of pinole among the Wappo (Beard 1979:3). The Salinan, Chumash, and Kitanemuk gathered chia seeds (Harrington 1942:8). The Mohave gathered the ripe seeds in July and ground and mixed them with water to make a mucilaginous refreshing beverage (Castetter and Bell 1951:195).

**Figure 59** Samuel A. Barrett collected these seeds from the Pomo of Yokaia Rancheria in 1902. They are nutlets of chia, *Salvia columbariae* (CDFA Report No. 3742).




*Cat. No. 1–2897*

**Figure 60** Alfred Kroeber collected these seeds among the Chukchansi Yokuts in Madera County in January of 1904. He recorded their name as *teanit*. These are nutlets of chia, *Salvia columbariae* (CDFA Report No. 3419).


*Cat. No. 1–4023*

**Figure 61** Alfred Kroeber acquired these seeds in January of 1904 from the Chukchansi in Madera and recorded them as a food and their Chukchansi name as *xelic*. The nutlets are from thistle sage, *Salvia carduacea* (CDFA Report No. 3753).


*Cat. No. 1–4054*

**Figure 62** Glossy, light brown seeds were used in a beverage by the Miwok, collected in Colorado, 5 miles northeast of Mariposa, Mariposa County, by Samuel A. Barrett in 1906. These were determined to be nutlets of chia, *Salvia columbariae* (CDFA Report No. 3420).


*Cat. No. 1–10347*

**Figure 63** Samuel A. Barrett collected these seeds from the Chukchanci Yokuts at Picayune in Madera County in 1906 and recorded them as a foodstuff. They are nutlets of chia, *Salvia columbariae* (CDFA Report No. 3470).


*Cat. No. 1–10388*

**Figure 64** Samuel A. Barrett collected these seeds from the Chukchanci Yokuts at Picayune in Madera County in 1906 and recorded them as a foodstuff. He wrote how they prepare the seeds for eating as "Parch, pulverize, and leach with manzanita cider." The specimen contains nutlets of chia, *Salvia columbariae* (CDFA Report No. 3467).


*Cat. No. 1–10441*

**Figure 65** Samuel A. Barrett recorded these seeds as glossy light brown in appearance and used as a food by the Miwok of Mariposa, Mariposa Co. They were collected in the vicinity of Picayune, in Madera County in 1906. These are nutlets of chia, *Salvia columbariae* (CDFA Report No. 3468).


*Cat. No. 1–10472*

**Figure 66** Samuel A. Barrett collected the light brown seeds in Dunlap, Fresno County, from the Yokuts in February of 1907. He recorded the Indian name as *tapiua* and labeled them as a foodstuff. The primary component of the specimen is chia (*Salvia columbariae*) nutlets (CDFA Report No. 3469).


*Cat. No. 1–10810*

**Figure 67** Samuel A. Barrett gathered these seeds from the Yokuts in Drum Valley, 6 miles south of Dunlap, Tulare County, in February of 1907. He recorded the Yokuts name as *kawa* and labeled the seeds as a foodstuff. These are nutlets of chia, *Salvia columbariae* (CDFA Report No. 3466).


*Cat. No. 1–10867*

**Figure 68** T.T. Waterman collected these seeds from the Kumeyaay at Mesa Grande, San Diego County in 1907. He recorded them as a type of sage and as a foodstuff. The nutlets compare best with *Salvia* sp., possibly white sage, *Salvia apiana* (CDFA Report No. 3418).


*Cat. No. 1–12996*

**Figure 69** Edward W. Gifford collected a bottle of edible seeds, unparched from the North Fork Mono in August of 1918. These are identified as nutlets of chia (*Salvia columbariae* Benth.) (CDFA Report No. 3474).


*Cat. No. 1–21685*

**Figure 70** Julian H. Steward collected the seeds of "sunflower," "chia," and "grassnut seeds" from the Paiute at Bishop in July 1927. These are identified as the achenes of common sunflower (*Helianthus annuus*) (on the left), nutlets of chia (*Salvia columbariae*) (on the right), and tubers of yellow nutsedge (*Cyperus esculentus*) (not shown here) (CDFA Report No. 3766).


*Cat. No. 1–26968 (1 of 2)*

**Figure 71** Julian H. Steward collected the seeds of "sunflower," "chia," and "grassnut seeds" from the Paiute at Bishop in July 1927. These are identified as the achenes of common sunflower (*Helianthus annuus*) (on the left), nutlets of chia (*Salvia columbariae*) (on the right), and a tuber of yellow nutsedge (*Cyperus esculentus*) (not shown here) (CDFA Report No. 3767).


*Cat. No. 1–26968 (2 of 2)*

**Figure 72** Julian H. Steward collected these seeds among the Paiute in Bishop in Inyo County in July of 1927. He wrote that it was "Chia" and a "food sample." These are identified as nutlets of chia, *Salvia columbariae* (CDFA Report No. 3471).


*Cat. No. 1–26971*

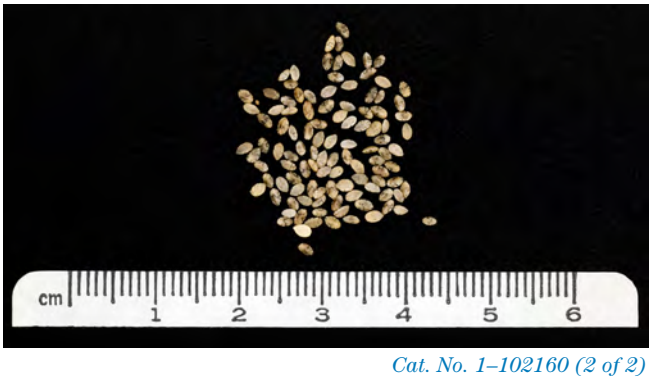
**Figure 73** Erminie W. Vogelin collected these seeds from the Tubatulabal on Miranda Rancheria, 4 miles north of Weldon in Kern County in 1932. She recorded them as two types: "chia and other." The specimen is a mixture of two *Salvia* species. The larger nutlets compare with thistle sage (*Salvia carduacea*) and the smaller nutlets compare with chia (*Salvia columbariae*) (CDFA Report No. 3417).


*Cat. No. 1–28782*

**Figure 74** Franklin Fenenga and Francis A. Riddell collected seeds from Ida Dick (Mono from Dunlap) in September of 1948. These are identified as nutlets of chia, *Salvia columbariae* (CDFA Report No. 3769).


*Cat. No. 1–102160 (1 of 2)*

**Figure 75** Franklin Fenenga and Francis A. Riddell collected seeds from Ida Dick (Mono from Dunlap) in September of 1948. They are chia, *Salvia columbariae*, nutlets (CDFA Report No. 3770).




*Cat. No. 1–102160 (2 of 2)*

**Figure 76** Lawrence E. Dawson collected the seeds of a *Salvia* from Minnie Williams in August of 1958. The seeds were used by the Paiute of Bishop, California and were referred to by the native name *pasída*. These are nutlets of chia, *Salvia columbariae* (CDFA Report No. 3473).


*Cat. No. 1–211559*

## Mustard Family (Brassicaceae)

***Descurainia* and *Lepidium* spp.**

Mountain tansymustard—also known as gray tansymustard (*Descurainia incana* (Bernh. ex Fisch. & C. A. Mey.) Dorn), and a subspecies of mountain tansy mustard (*D. incana* (Bernh. ex Fisch & C.A. Mey.) Dorn ssp. *incisa* (Engelm. ex A. Gray) Kartesz & Gandi), California natives, grow in open sites, meadows, sagebrush, open aspen groves, and shrubland from 1,000 to 3,400 meters (Rollins 1993) (figs. 77 and 78). Herb-Sophia, also known as flixweed (*Descurainia sophia* (L.) Webb ex Prantl), is native to Eurasia and is common in disturbed areas, fields, roadsides, canyon bottoms, and the desert below 2,600 meters throughout California (Rollins 1993) (figs. 79 and 80). Shining pepperweed (*Lepidium nitidum* Nutt.), also native to California, is found on alkaline soils, flats, and slopes below 1,500 meters throughout the State, except the eastern Desert Province (Rollins 1993) (fig. 81). Clasping pepperwort (*Lepidium perfoliatum* L.) is native to Eurasia and is widespread in the Cascade Ranges, Central Valley, South Coast Ranges, Great Basin, and the desert (Rollins 1993) (fig. 82). All of these species have edible seeds that were gathered by tribes. The Northern Paiute made a beverage from the seeds of *D. incana* ssp. *incana* (Fowler 1989). The Klamath parched and ground the seeds of *D. incana* ssp. *incisa* for food (Coville 1897). The Northerm Paiute and Kawaiisu made a beverage from the ground seeds of western tansymustard (*D. pinnata* (Walter) Britton), and the Cahuilla used them to flavor soups or as a condiment with corn (Fowler 1989; Zigmond 1981; Bean and Saubel 1972). The Atsugewi made the seeds of western tansymustard (*D. pinnata* ssp. *pinnata)* into cakes and ate them uncooked (Garth 1953). The Northern Paiute and Kawaiisu made a beverage from the seeds of *D. sophia* (Fowler 1989; Zigmond 1981). The seeds of *L. nitidum* were eaten by the Luiseño (Sparkman 1908).

**Figure 77** Mountain tansymustard (*Descurainia incana*)

*© 2010 Jean Pawek*

**Figure 78** Mountain tansymustard (*Descurainia incana* ssp. *incisa*)


*USDA–NRCS PLANTS Database/Britton, N.L., and A. Brown. 1913. From: An illustrated flora of the northern United States, Canada and the British Possessions. 3 Vols. Charles Scribner's Sons, New York. Vol. 2:171*

**Figure 79** Herb-Sophia or flixweed (*Descurainia sophia*) flowers and fruits

*© 2009 Thomas Stoughton*

**Figure 80** Flixweed (*Descurainia sophia*) leaves

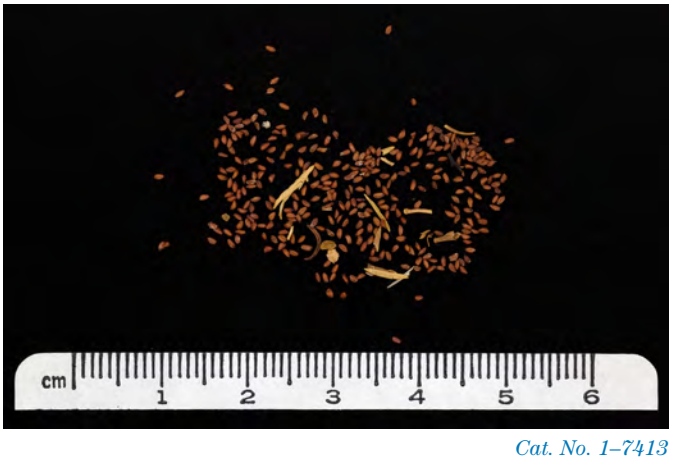


**Figure 81** Shining pepperweed (*Lepidium nitidum*)

**Figure 82** Clasping pepperwort (*Lepidium perfoliatum*)

*© 2009 Thomas Stoughton*

**Figure 83** Roland Dixon collected seeds from the Maidu and recorded them as edible. These are identified as tansymustard (*Descurainia* sp.), but species was not determined (CDFA Report No. 3756).

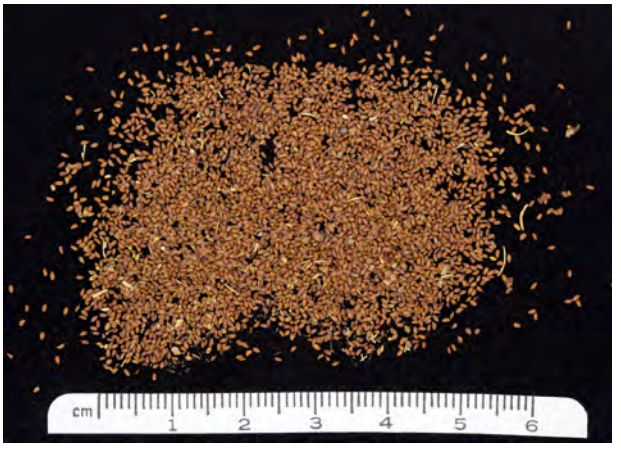



*Cat. No. 1–7413*

**Figure 84** In 1907, Samuel A. Barrett collected seeds known as *chipas*, and recorded them as being used as food when parched and ground on the Klamath Reservation, Oregon. The seeds and fruit fragments are of herb-Sophia or flixweed (*Descurainia sophia*) (CDFA Report No. 3421).

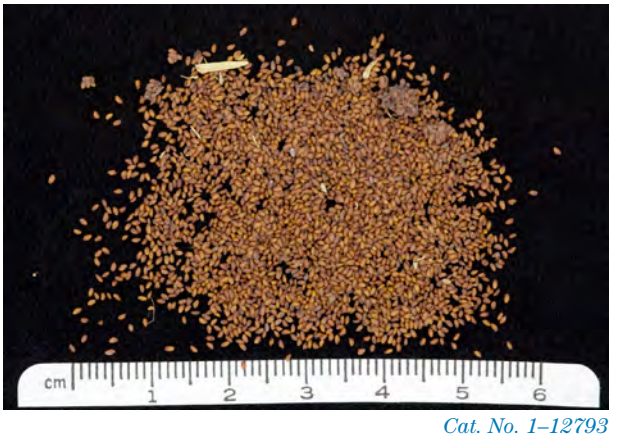

*Cat. No. 1–12283*

**Figure 85** In 1907, Samuel A. Barrett collected another species of very fine seeds also called *chipas*, and wrote that they were used as food on the Klamath Reservation, Oregon. These seeds and fruit fragments are of mountain tansymustard (*Descurainia incana*) (CDFA Report No. 3422).




*Cat. No. 1–12710*

**Figure 86** In 1907, Samuel A. Barrett made another collection of seeds (*chipas*), used as food on the Klamath Reservation, Oregon. This mixture of seeds and fruit fragments contains both herb-Sophia or flixweed (*Descurainia sophia*) and mountain or gray tansymustard (*Descurainia incana* ssp. *incisa*) (CDFA Report No. 3423).




*Cat. No. 1–12793*

**Figure 87** Very small red seeds were used as food on the Klamath Reservation, Oregon, and collected in May of 1908. The collector is unknown. The fruit fragments and seeds are of mountain or gray tansymustard (*Descurainia incana*) (CDFA Report No.


*Cat. No. 1–14304*

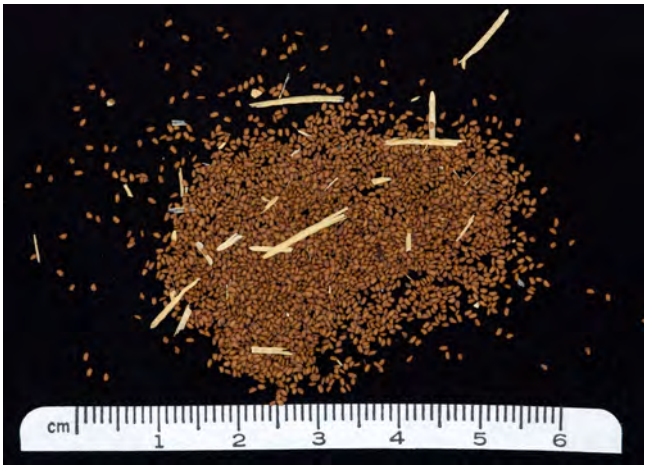
**Figure 88** Lawrence E. Dawson collected these seeds from Minnie Williams in 1958. He recorded that the Paiute from Bishop, Inyo County, used the seeds and called them *átsa*. These are fruit fragments and seeds of herb-Sophia or flixweed (*Descurainia sophia*) (CDFA Report No. 3425).


*Cat. No. 1–211558*

**Figure 89** Alfred Kroeber acquired these seeds from the Chukchansi in January of 1904. The seeds are from the shining pepperweed plant (*Lepidium nitidum*) (CDFA Report No. 3750).


*Cat. No. 1–4033*

**Figure 90** F.A. Riddell collected these seeds from Gladys Mankins in July of 1951 in Lassen County. He recorded the culture as Wadatkut Paiute and the Paiute name *asta* for the seeds. The specimen contains seeds and fruits of herb-Sophia or flixweed (*Descurainia sophia*) and clasping pepperwort (*Lepidium perfoliatum*), another native of Eurasia (CDFA Report No. 3426).



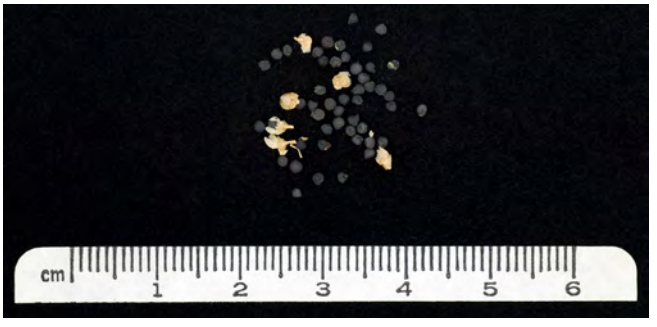

*Cat. No. 1–211582*

## Onion Family (Amaryllidaceae)

### Wild onion

Many kinds of wild onion were eaten by tribes, valued for their bulbs and greens. In at least one case, the seeds were also gathered by a tribe, the Chukchansi, possibly for food.

**Figure 91** Alfred Kroeber acquired these seeds from the Chukchansi in January of 1904. These are wild onion (*Allium* sp.) seeds (CDFA Report No. 3751).




*Cat. No. 1–4034*

## Purslane Family (Portulacaceae)

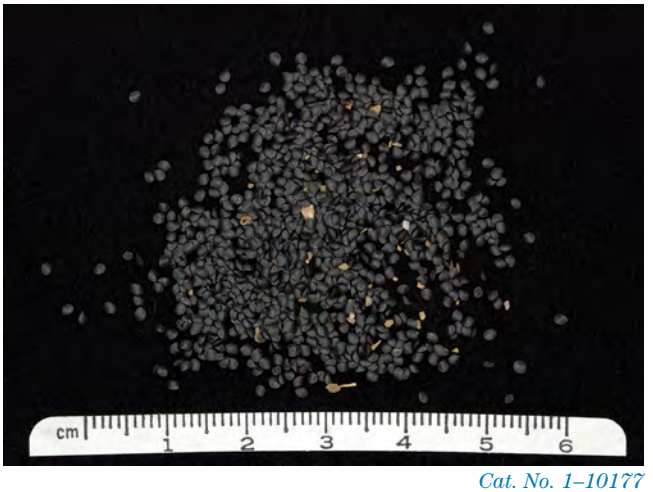
### Fringed redmaids

Many tribes relished the highly prized jet black seeds of fringed redmaids—also known as "redmaids" (*Calandrinia ciliata* (Ruiz & Pav.) DC.) throughout most of the California Floristic Province (see fig. 2 and fig. 92). In the Central Valley, masses of pink grew in wide swaths between enormous valley oaks. Fringed redmaids still comes up in farmer's fields and are often eradicated as a "weed."

**Figure 92** Fringed redmaids (*Calandrinia ciliata*)

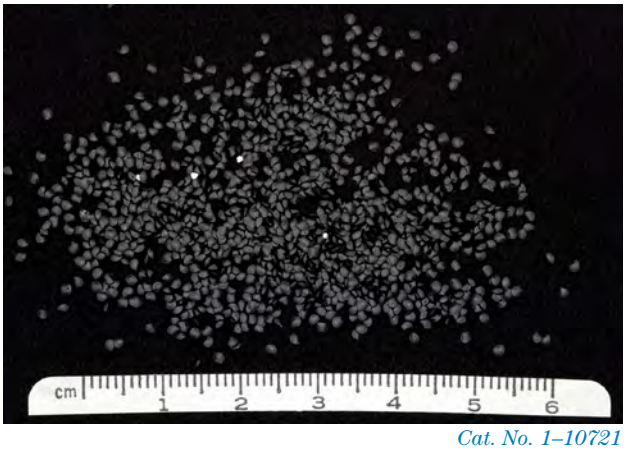
*©2008 M. Kat Anderson*

**Figure 93** Samuel A. Barrett collected these seeds at Chicken Ranch, 1.5 miles west of Jamestown, in Tuolumne County in 1906. He recorded their use for food among the Miwok and documented their Indian name as *Kotca*. These are identified as fringed redmaids (*Calandrinia ciliata*) seeds (CDFA Report No. 3459).



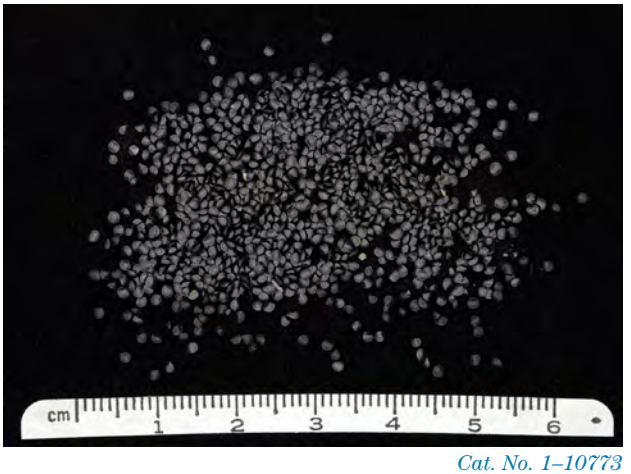

*Cat. No. 1–10177*

**Figure 94** Samuel A. Barrett collected these seeds from the Yokuts at Santa Rosa Rancheria, 5 miles southwest of Lemoore in Kings County, in February of 1907. He wrote that the "small and shiny black seeds" were called *kasyin* and that they were "parched and ground as a food." These are identified as fringed redmaids (*Calandrinia ciliata*) seeds (CDFA Report No. 3458).



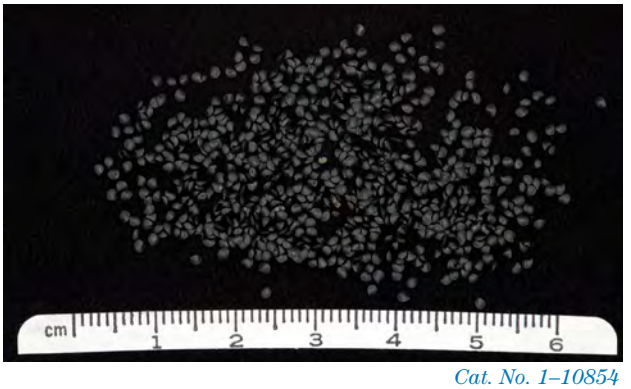

*Cat. No. 1–10721*

**Figure 95** In February of 1907, Samuel A. Barrett collected seeds from a Yokuts village called *Ticetcu* at the confluence of the Kings River and Miller Creek. He recorded "Used to make pinole *luku*; Black seeds (*keziyín*) grow in the plains; the brown ones (*uwun*) grow in the mountains." The main component of this sample is fringed redmaids (*Calandrinia ciliata*) seeds (CDFA Report No. 3461).




*Cat. No. 1–10773*

**Figure 96** In February of 1907, Samuel A. Barrett collected seeds from the Yokuts in Drum Valley, 6 miles south of Dunlap. He recorded the Yokuts name as *kean* and said they were used as a "foodstuff." These are identified as fringed redmaids (*Calandrinia ciliata*) seeds (CDFA Report No. 3460).




*Cat. No. 1–10854*

## Sunflower Family (Asteraceae)

The sunflower family contains more species of plants with edible seeds than any other family and it is no surprise that the PAHMA collections reflect this diversity with seven genera with edible seeds. Two museum samples below could not be identified to genus level.

**Figure 97** Samuel A. Barrett collected these seeds from the Pomo at Yokaia Rancheria in August of 1902. These are the achenes of a plant in the Asteraceae (remains unidentified to genus level) (CDFA Report No. 3745).


*Cat. No. 1–2905 (1 of 2)*

**Figure 98** Samuel A. Barrett collected these seeds from the Pomo at Yokaia Rancheria in August of 1902. These are the achenes of a plant in the Asteraceae (remains unidentified to genus level) (CDFA Report no. 3746).


*Cat. No. 1–2905 (2 of 2)*

### Blow wives

Blow wives (*Achyrachaena mollis* Schauer) grow in great profusion in grassy areas throughout the California Floristic Province, and its seeds were eaten by the Yokeya Pomo, the Yuki, and the Wintu of Colusa County (Hudson n.d. #20,021; Chesnut 1974; Anderson 2005b) (fig. 99). Collections made for the PAHMA by Samuel A. Barrett in 1906 reveal that the Sierra MiWok also ate these seeds. As far as we know, this is the only record of Mi-Wuk use. The wide geographic range of known Indian use, coupled with the wide geographic distribution of the plant, point to its likely use by many other tribes for its edible seeds.

**Figure 99** Blow wives (*Achyrachaena mollis*)

*©2009 Aaron Schusteff*

**Figure 100** In 1906, Samuel A. Barrett visited the Miwok of Chicken Ranch, 1.5 miles west of Jamestown in Tuolumne County, and collected seeds. The specimen in the photograph shows the material as it is harvested before separating the seed and chaff. The sample contains fruits of blow wives (*Achyrachaena mollis*) (CDFA Report No. 3478).


*Cat. No. 1–10164*

## Sunflower

Many California tribes ate the seeds of the common sunflower (*Helianthus annuus* L.) (fig. 101).

**Figure 101** Common sunflower (*Helianthus annuus*)

*Clarence A. Rechenthin*
*USDA–NRCS PLANTS Database*

**Figure 102** Julian H. Steward collected the seeds of "sunflower," "chia," and "grassnut seeds" from the Paiute at Bishop in July 1927. These are identified as the achenes of common sunflower (*Helianthus annuus*) (on the left), nutlets of chia (*Salvia columbariae*) (on the right), and tubers of yellow nutsedge (*Cyperus esculentus*) (not shown here) (CDFA Report No. 3766).


*Cat. No. 1–26968 (1 of 2)*

**Figure 103** Julian H. Steward collected the seeds of "sunflower," "chia," and "grassnut seeds" from the Paiute at Bishop in July 1927. These are identified as the achenes of common sunflower (*Helianthus annuus*) (on the left), nutlets of chia (*Salvia columbariae*) (on the right), and tubers of yellow nutsedge (*Cyperus esculentus*) (not shown here) (CDFA Report No. 3767).


*Cat. No. 1–26968 (2 of 2)*

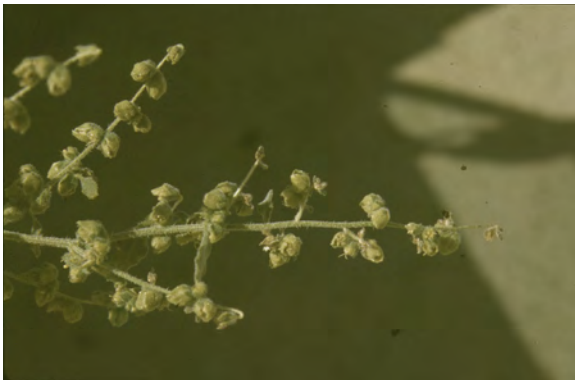
### Desert twinbugs

Desert twinbugs (*Dicoria canescens* A. Gray) are found below 1,300 meters in sandy soil in both the Mojave Desert and the Sonoran Desert (Payne 1993) (figs. 104 and 105). No previous documentation of the seeds of this plant as a food source has been found.

**Figure 104** Desert twinbugs (*Dicoria canescens*)

*© 1995 Saint Mary's College of California*

**Figure 105** Desert twinbugs (*Dicoria canescens*)



*© 1995 Saint Mary's College of California*

**Figure 106** In 1975, Mary Dedecker found a water bottle pitched with singleleaf pine pitch (*Pinus monophylla*) in the Last Chance Mountains in Inyo County that contained seeds potentially utilized for food by the Panamint. The sample contains achenes of desert twinbugs (*Dicoria canescens*) (bottom right), florets of Indian ricegrass (*Achnatherum hymenoides* (top left), caryopses of Eureka dunegrass (Swallenia alexandrae (top right), and seeds of a sage (*Salvia* sp.) (not shown here) (CDFA Report No. 3772).


*Cat. No. 1–236789b (2 of 2)*

**Mule-ears and compassplant**

Often called "wild sunflowers" in the anthropological literature, *Wyethia* spp. have bright yellow flowers and large, soft leaves in the shape of a mule's ear. The seeds of California compassplant (*Wyethia angustifolia* (DC.) Nutt.) were eaten by the Maidu, Ohlone, Pomo, Wailaki, and Yuki and other tribes (Bocek 1984; Dixon 1905) (figs. 107 and 108). Coast Range mule-ears (*Wyethia glabra* A. Gray) seeds were eaten by the Pomo (Goodrich, Lawson, and Parrish Lawson 1980) (fig. 109).

**Figure 107** California compassplant (*Wyethia angustifolia*)

*© 2008 Keir Morse*

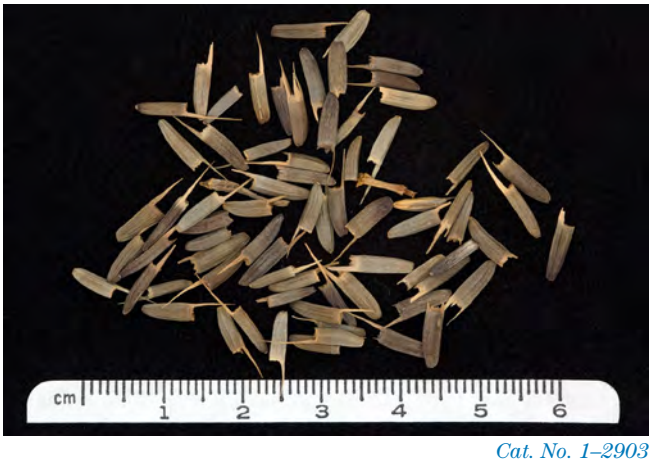
**Figure 108** California compassplant (*Wyethia angustifolia*) flower

*© 2006 Gary A. Monroe*
*USDA–NRCS PLANTS Database*

**Figure 109** Coast Range mule-ears (*Wyethia glabra*)



**Figure 110** In 1902, Samuel A. Barrett acquired edible seeds from the Pomo at Yokaia Rancheria (7 miles south of Ukiah). These are the fruits of California compassplant (*Wyethia angustifolia*) (CDFA Report No. 3453).




*Cat. No. 1–2903*

**Figure 111** In 1903, Samuel A. Barrett acquired seeds from the Pomo at Asylum Ranch near Ukiah. He recorded them as edible and called the plant heads "Indian wheat." The specimen includes inflorescence heads and fruits of California compassplant (*Wyethia angustifolia*) (CDFA Report No. 3456).


*Cat. No. 1–2913*

**Figure 112** Roland Dixon acquired seeds from the Maidu and listed them as "*Wyethia angustifolia*." These are identified as *Wyethia* sp. (CDFA Report No. 3757).


*Cat. No. 1–7419*

**Figure 113** In 1907, Samuel A. Barrett collected seeds from the Yuki at Round Valley and recorded that they were parched in a basket with coals and used for food. The specimen includes inflorescence heads and fruits of California compassplant, *Wyethia angustifolia* (CDFA Report No. 3457).


*Cat. No. 1–11909*

**Figure 114** In 1907, Samuel A. Barrett visited the Wailaki at Round Valley and collected seeds (called *tcá'la*) and recorded them as used as food. Consultants were Jim Matcatc (Wailaki) and his sister Sally Brown (Wailaki) (see fig. 5). These are identified as fruits of California compassplant, *Wyethia angustifolia* (CDFA Report No. 3455).


*Cat. No. 1–12080*

**Figure 115** In 1907, Samuel A. Barrett visited the Wailaki at Round Valley and acquired seeds (called *tcá'la*) and recorded that they were used for pinole. The consultant was Capt. Jim (Wailaki). The fruits are of California compassplant, *Wyethia angustifolia* (CDFA Report No. 3454).


*Cat. No. 1–12166*

**Figure 116** Larry E. Dawson acquired seeds from the Paiute in Bishop in August of 1958 and recorded the Indian name as *ako*. He identified the plant as *Wyethia mollis*. The specimen is identified as containing the fruits of woolly mule-ears, *Wyethia mollis* A. Gray (CDFA Report No. 3452).


*Cat. No. 1–211564*

**Tarweed**

Tarweeds occur in thick, yellow patches across many types of landscapes in our rainless season. Their pungent fragrance is a characteristic smell in the height of summer, referring to the tarry exudate, which is repulsive to cattle and other herbivores (Lowry 2009). Many tribes relished the oily, crescent-shaped seeds of the tarweeds, and some of these plants still grow densely in grasslands, chaparral, oak savannas, and coniferous forests (Anderson 2005a). They are split among two genera—*Hemizonia* and *Madia* (figs. 117 to 120).

**Figure 117** Hayfield tarweed (*Hemizonia congesta*)



**Figure 118** Coast tarweed (*Madia sativa*)

**Figure 119** Mountain tarweed (*Madia glomerata*)

*© 2010 Jean Pawek*

**Figure 120** Common madia (*Madia elegans*)

*© 2008 Lynn Watson*

**Figure 121** Pliny Earle Goddard acquired seeds from the Pomo of the Ukiah area and noted that they were used for pinole. These are identified as hayfield tarweed (*Hemizonia congesta*) fruits (CDFA Report No. 3741).


*Cat. No. 1–2367*

**Figure 122** In 1902, Samuel A. Barrett acquired tarweed seeds from the Pomo at Yokaia Rancheria, 7 miles south of Ukiah, and recorded their use as a food. The sample contains fruits of hayfield tarweed (*Hemizonia congesta*) (CDFA Report No. 3451).


*Cat. No. 1–2891*

**Figure 123** In 1902, Samuel A. Barrett acquired tarweed seeds from the Pomo at Yokaia Rancheria, 7 miles south of Ukiah, and recorded their use as food. These are fruits of coast tarweed (*Madia sativa*) (CDFA Report No. 3429).


*Cat. No. 1–2899*

**Figure 124** In 1902, Samuel A. Barrett collected tarweed seeds from the Pomo at Yokaia Rancheria, 7 miles south of Ukiah, and recorded their use as food. The fruits are identified as hayfield tarweed, *Hemizonia congesta* (CDFA Report No. 3450).


*Cat. No. 1–2900*

**Figure 125** In 1903, Samuel A. Barrett collected tarweed seeds from the Pomo at Yokaia Rancheria, 7 miles south of Ukiah. The sample contains fruits of mountain tarweed (*Madia glomerata*) (CDFA Report No. 3428).


*Cat. No. 1–2904*

**Figure 126** Common madia *(Madia elegans*) fruits (CDFA Report No. 3432)


*Cat. No. 1–4025 (no card)*

**Figure 127** Roland Dixon collected these seeds from the Maidu, and they are identified as fruits of coast tarweed (*Madia sativa*) (CDFA Report No. 3759).


*Cat. No. 1–7424*

**Figure 128** In 1906, Samuel A. Barrett collected flat, curved seeds from the Miwok of Chicken Ranch, 1.5 miles west of Jamestown, and recorded their use as food. The sample consists primarily of coast tarweed (*Madia sativa*) fruits (CDFA Report No. 3427).


*Cat. No. 1–10197*

**Figure 129** In 1906, Samuel A. Barrett acquired small, flat, brown seeds from the Miwok at Quartz, 1 mile west of Jamestown, Tuolumne County, and recorded their use as food. These are fruits of coast tarweed (*Madia sativa*) (CDFA Report No. 3434).


*Cat. No. 1–10206*

**Figure 130** In 1906, Samuel A. Barrett acquired flat curved black seeds from the Miwok at Bald Rock, Tuolumne County, 3 miles north of Tuolumne, and recorded their use as food. The sample is a mixture of many types of seed, but the primary component is fruit of coast tarweed (*Madia sativa*) (CDFA Report No. 3491).


*Cat. No. 1–10271*

**Figure 131** In 1906, Samuel A. Barrett acquired the flat, curved, brown seeds from the Miwok of Bald Rock, Tuolumne County, 3 miles north of Tuolumne, and recorded their use as food. The main component of the sample is fruit of coast tarweed (*Madia sativa*) (CDFA Report No. 3492).


*Cat. No. 1–10272*

**Figure 132** In 1906, Samuel A. Barrett acquired flat, curved, brown seeds from the Miwok, Soulsbyville, Tuolumne County, and recorded their use as food. The sample is a mixture of many plant species, but the most prominent is coast tarweed (*Madia sativa*) (CDFA Report No. 3493).


*Cat. No. 1–10292*

**Figure 133** In 1906, Samuel A. Barrett collected flat, brown seeds from the Miwok, 5 miles northeast of Mariposa, Mariposa County. Although labeled by the collector as "*Madia sativa*," these are determined to be common madia, *Madia elegans* (CDFA Report No. 3494).


*Cat. No. 1–10348*

**Figure 134** In 1906, Samuel A. Barrett acquired black seeds from the Chukchanci at Picayune and recorded them as "ethnobotanical." The main component of the sample is fruit of common madia (*Madia elegans*) (CDFA Report No. 3435).


*Cat. No. 1–10390*

**Figure 135** In 1906, Samuel A. Barrett acquired seeds from the Chukchanci at Picayune and recorded them as "ethnobotanical." There are identified as the fruits of common madia (*Madia elegans*) (CDFA Report No. 3433).


*Cat. No. 1–10440*

**Figure 136** Samuel A. Barrett collected these seeds in 1906 at Fresno Flat from the Yokuts. These are identified as the fruits of common madia (*Madia elegans*) (CDFA Report No. 3760).


*Cat. No. 1–10460*

**Figure 137** Samuel A. Barrett collected these seeds in July of 1907 from the Yuki at Round Valley. These are identified as the fruits of coast tarweed (*Madia sativa*) (CDFA Report No. 3761).


*Cat. No. 1–11970*

**Figure 138** In July of 1907, Samuel A. Barrett acquired tarweed seeds from the Yuki at Round Valley. These are the fruits of coast tarweed, *Madia sativa* (CDFA Report No. 3431).


*Cat. No. 1–11992*

**Figure 139** In 1907, Samuel A. Barrett collected black seeds from the Yuki of Round Valley and recorded their use as pinole. These are fruits of coast tarweed (*Madia sativa*) (CDFA Report No. 3495).


*Cat. No. 1–12013*

**Figure 140** In 1907, Samuel A. Barrett collected black seeds from the Yuki of Round Valley and recorded their use as food. The primary component is coast tarweed (*Madia sativa*) fruits (CDFA Report No. 3496).


*Cat. No. 1–12029*

**Figure 141** The seeds of *koikwa* were acquired on the Klamath Reservation, Oregon, and recorded as parched and ground in mortar for food. These are fruits of mountain tarweed (*Madia glomerata*) (CDFA Report No. 3497).


*Cat. No. 1–12613*

**Figure 142** These seeds were collected on the Klamath Reservation, Oregon, and recorded as used for food. These are identified as mountain tarweed (*Madia glomerata*) fruits (CDFA Report No. 3430).


*Cat. No. 1–14112*

**Figure 143** These seeds were collected on the Klamath Reservation, Oregon, and recorded as used for food. The specimen contains mainly fruits of mountain tarweed (*Madia glomerata*) (CDFA Report No. 3499).


*Cat. No. 1–14113*

**Figure 144** The main component of the sample is common madia (*Madia elegans*) fruits (CDFA Report No. 3498).


*Cat. No. 1–21678*

**Figure 145** Edward W. Gifford acquired a bottle of seeds from the North Fork Mono in August of 1918. These are identified as fruits from common madia (*Madia elegans*) (CDFA Report No. 3765).


*Cat. No. 1–21687*

Cat. No. 1–11913. (No photo). Samuel A. Barrett collected pinole meal from the Yuki in Round Valley in July of 1907. This finely ground material contains broken seed coats of tarweed, *Madia* sp. (CDFA Report No. 3502).

Cat. No. 1–12030. (No photo). In July of 1907, Samuel A. Barrett acquired light colored pinole from the Yuki of Round Valley and recorded the name as *wo'ot.* The specimen consists of finely ground plant materials. Included are broken seeds coats of tarweed, *Madia* sp., and finely broken caryopses of unknown cereal grains (Poaceae) (CDFA Report No. 3501).

### Tidytips

Smooth tidytips (*Layia chrysanthemoides* (DC.) A. Gray) are found in grasslands on open heavy soil below 800 meters along the North Coast, and in the North Coast Ranges, the Central Valley, and in central western California (Baldwin and Bainbridge 1993) (fig. 146).

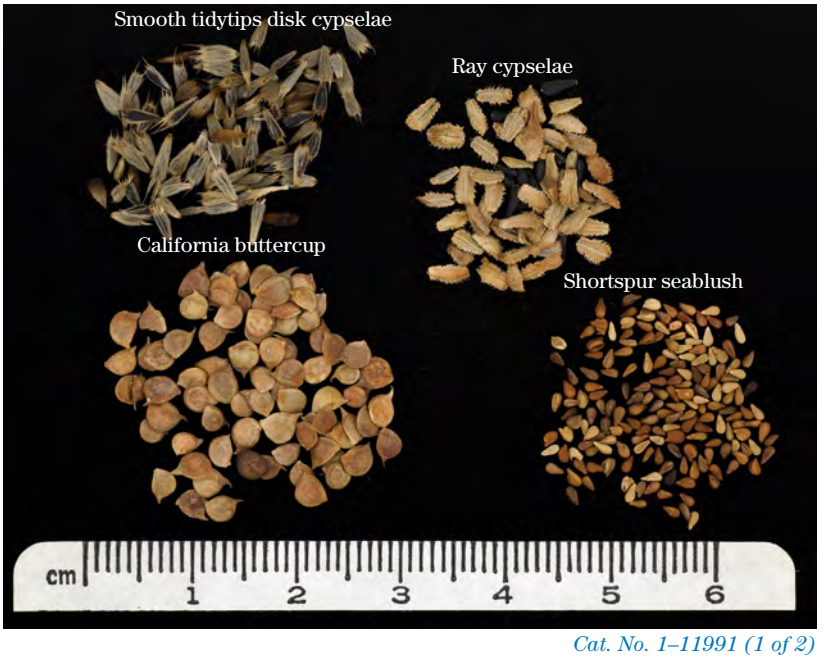
**Figure 146** Smooth tidytips (*Layia chrysanthemoides*)

*© 2010 Barry Breckling*

**Figure 147** In July 1907, Samuel A. Barrett collected "uncleaned and unseparated seeds of 6 different kinds" from the Yuki in Round Valley. There are four main components of this seed sample identified: fiddleneck, possibly Menzies' fiddleneck (*Amsinckia menziesii menziesii* (bottom left), California buttercup (*Ranunculaceae californicus*) (bottom middle), smooth tidytips (*Layia chrysanthemoides*) ray cypselae enclosed in bracts (bottom right) and disk cypselae (top right), and shortspur seablush (*Plectritis congesta*) (top left) (CDFA Report No. 3479).


*Cat. No. 1–11969*

**Figure 148** In July of 1907, Samuel A. Barrett collected seeds of "various kinds" that were prepared by being "parched." These were collected from the Yuki at Round Valley. There were three main components of this seed mixture identified: shortspur seablush (*Plectritis congesta*) (bottom right), California buttercup (*Ranunculaceae californicus*) (bottom left), and smooth tidytips (*Layia chrysanthemoides*) disk cypselae (top left) and ray cypselae, most enclosed in bracts (top right) (CDFA Report No. 3762).




*Cat. No. 1–11991 (1 of 2)*

**Figure 149** In July of 1907, Samuel A. Barrett collected seeds of "various kinds" that were prepared by being "parched." These were collected from the Yuki at Round Valley. The three main components of this mixture are: shortbush seablush (*Plectritis congesta*) (bottom right), California buttercup (*Ranunculaceae californicus*) (bottom left), and smooth tidytips (*Layia chrysanthemoides*) ray cypselae enclosed in bracts (top) and disk cypselae (bottom middle) (CDFA Report No. 3763).


*Cat. No. 1–11991 (2 of 2)*

## Valerian Family (Valerianaceae)

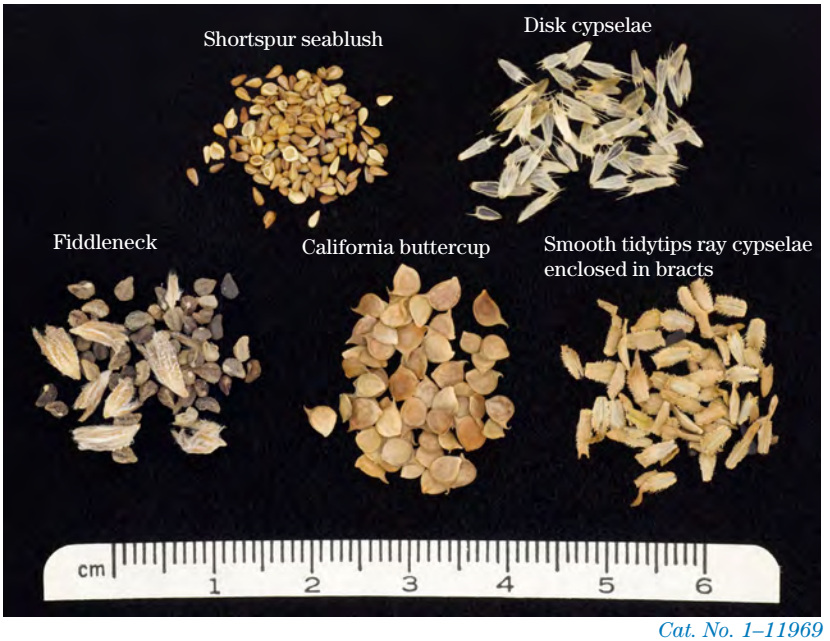
### Seablush

Shortspur seablush (*Plectritis congesta* (Lindl.)DC.) grows on coastal bluffs in open to partly shaded slopes at elevations of 100 to 900 meters (Ganders 1993) (fig. 150). It grows in northwestern and central western California, but to our knowledge is not recorded anywhere in the literature as a food for tribes. Samuel Barrett, however, collected it among the Yuki of Round Valley.

**Figure 150** Shortspur seablush (*Plectritis congesta*)

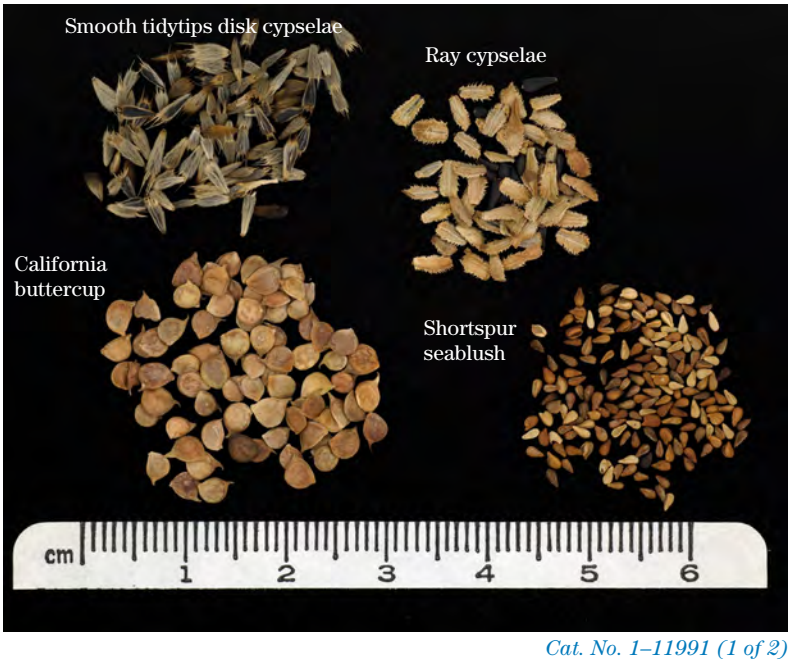
*© 2008 Keir Morse*

**Figure 151** In July 1907, Samuel A. Barrett collected "uncleaned and unseparated seeds of 6 different kinds" from the Yuki in Round Valley. There are four main components of this seed sample identified: fiddleneck, possibly Menzies' fiddleneck (*Amsinckia menziesii*) (bottom left), California buttercup (*Ranunculaceae californicus*) (bottom middle), smooth tidytips (*Layia chrysanthemoides*) ray cypselae enclosed in bracts (bottom right) and disk cypselae (top right), and shortspur seablush (*Plectritis congesta*) (top left) (CDFA Report No. 3479).



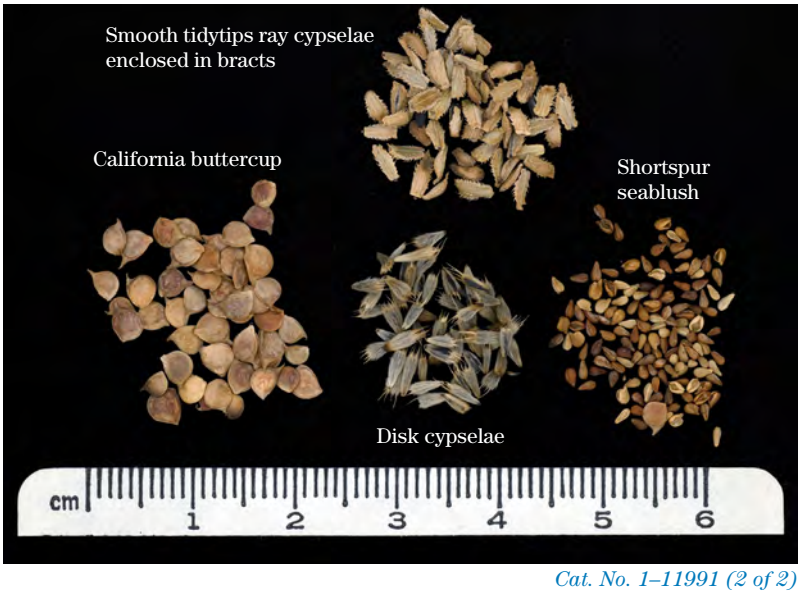

*Cat. No. 1–11969*

**Figure 152** In July of 1907, Samuel A. Barrett collected seeds of "various kinds" that were prepared by being "parched." These were collected from the Yuki at Round Valley. There were three main components of this seed mixture identified: shortspur seablush (*Plectritis congesta*) (bottom right), California buttercup (*Ranunculaceae californicus*) (bottom left), and smooth tidytips (*Layia chrysanthemoides*) disk cypselae (top left) and ray cypselae, enclosed in bracts (top right) (CDFA Report No.




*Cat. No. 1–11991 (1 of 2)*

**Figure 153** In July of 1907, Samuel A. Barrett collected seeds of "various kinds" that were prepared by being "parched." These were collected from the Yuki at Round Valley. There are three main components in this mixture of seeds: shortspur seablush (*Plectritis congesta*) (bottom right), California buttercup (*Ranunculaceae californicus*) (bottom left), and smooth tidytips (*Layia chrysanthemoides*) ray cypselae enclosed in bracts (top) and disk cypselae (bottom middle) (CDFA Report No. 3763).




*Cat. No. 1–11991 (2 of 2)*

## Water-lily Family (Nymphaeaceae)

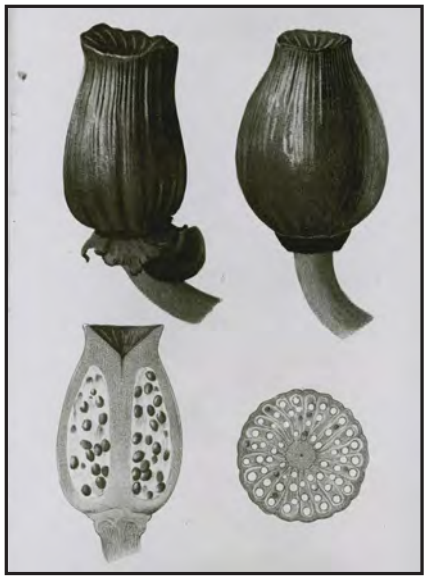
### Rocky Mountain pond-lily

Freshwater marshes, ponds, and slow-moving streams yielded the edible seeds of the of Rocky Mountain pond-lily, (*Nuphar lutea* (L.) Sm. ssp. *polysepala* (Engelm.) E.O Beal), also known as *Nuphar polysepala* Engelm. (figs. 154–158). The plant has a yellow flower, and its leaves and infloresences float on the water—forming dense colonies. The leaves are deeply cordate. The Klamath Marsh at one time contained 15 square miles of solid growth of this species (Colville 1904). The seed pods contain many thick-coated seeds. Once shelled, the seed is almost as big as a domesticated sunflower seed.

**Figure 154** Rocky Mountain pond-lily, (*Nuphar lutea* subsp. *polysepala*)

*© 2009 Keir Morse*

**Figure 155** Seed pods, called wokas by the Klanath Indians, collected near Fort Klamath, Oregon. Photograph #OPPS NEG 3061 E 4 of drawing taken in 1902 by anonymous photographer.



*Courtesy of the National Anthropological Archives, the Smithsonian National Museum of Natural History*

**Figure 156** Klamath woman gathering wokas. Photograph #NAA INV 03246400 taken in June 1923 by Edward S. Curtis.

*Courtesy of the National Anthropological Archives, the Smithsonian National Museum of Natural History*

**Figure 157** The wokas gatherers' boats and pole. Photograph #OPPS NEG 3061 E 2 taken in 1902 by Edward S. Curtis.

*Courtesy of the National Anthropological Archives, the Smithsonian National Museum of Natural History*

**Figure 158** Klamath woman grinding wokas on a mealing stone. Photograph #NAA INV 03246600 taken in 1923 by Edward S. Curtis.

*Courtesy of the National Anthropological Archives, the Smithsonian National Museum of Natural History*

The Klamath and Modoc of the Modoc Plateau; the Tolowa, Yurok, and Wailaiki of northwestern California; the Pomo, Yuki, and Nomlaki of central western California; the Sierra Miwok of the northern and central Sierra Nevada; the Concow Maidu of the Sacramento Valley and foothills; and other tribes relished its seeds (Baker 1981; Chesnut 1974; Colville 1904; Kroeber 1976).

Chesnut (1974:347) described the seeds as "nutritious" and said that they were eaten by the Indians "whenever they can get them." The Klamath and Modoc harvested seed pods by canoe, gathering the less mature pods by hand and the mature pods with a spoon of tule or willow (Coville 1904). A Klamath or Modoc woman averaged 4 to 6 bushels of pods in a day of gathering. These would yield 20 to 30 pounds of seeds (Kroeber 1976:325). There were many ways to prepare the seeds for eating: one way was to parch the dry seeds, crack open the seed coat, winnow off the chaff and boil the seeds into a gruel (Kroeber 1976:324). The degree of ripeness of the seeds helped determine how they were prepared, and the Klamath and Modoc developed a complex vernacular for the different grades of seeds and the resulting dishes made from these different grades (Coville 1904). The Klamath and Modoc managed the yellow pond-lily by burning and weeding competing vegetation, reseeding areas during first wokas ceremonies, and using harvest patterns that prevented the overharvest of specific areas (Deur 2009).

It is possible that some of the freshwater marshes of the Central Valley also contained this important food, and it was indulged in by the Valley Yokuts groups that surrounded Tulare and Buena Vista Lakes before they were drained to create farmlands. The valley

trough from the historic Tulare Lake north to the San Joaquin River historically collected overflow and upland sheet flow, supporting extensive freshwater marsh (Holmes et al. 1919 cited in Vaghti and Greco 2007:432). Anthropologist Anna Gayton recorded a substantial food for the Yokuts Lake tribes, which might be the pond-lily:

"Of vegetable foods, sopas (arrowhead?) was the staple (for Yokuts Lake tribes). It was not put in a mortar at first, but in a depression in the ground, where it was trampled. The leaves and seed pods were picked out; the seeds were put in a mortar and pounded. The flour, wetted with water, formed a mush called *so'pas-n sa'sa*" (Gayton 1948:15).

She guessed that the food was arrowhead (*Sagittaria* sp.)—but this plant does not have seed pods; it has convex receptacles. Furthermore, arrowhead is noted in the ethnographic literature for its edible tubers, *not* seeds. The Rocky Mountain pond-lily has deeply cordate (heart-shaped) leaves—and when not fully developed, the leaves can appear sagittate as the leaves of the arrowhead mentioned by Gayton. (Sagittate means they are arrowhead-shaped, with two basal lobes oriented nearly parallel to the long axis.)

**Figure 159** In 1907, Samuel A. Barrett acquired shelled and parched seeds taken from mature pods on the Klamath Reservation, Oregon. The specimen consists of puffed seeds of Rocky Mountain pond-lily (*Nuphar lutea* subsp. *polysepala*) (CDFA Report No. 3463).


*Cat. No. 1–12481*

**Figure 160** In 1907, Samuel A. Barrett collected "unparched wokas" on the Klamath Reservation, Oregon. These are the fruit fragments and seeds of Rocky Mountain pond-lily (*Nuphar lutea* subsp. *polysepala*) (CDFA Report No. 3407).


*Cat. No. 1–12279*

**Figure 161** In 1907, Samuel A. Barrett collected wokas on the Klamath Reservation, Oregon, and recorded the Indian name as *slulpalc*. The sample contains fruit fragments and seeds of Rocky Mountain pond-lily (*Nuphar lutea* subsp. *polysepala*) (CDFA Report No. 3406).


*Cat. No. 1–12611*

**Figure 162** In 1907, Samuel A. Barrett collected seeds on the Klamath Reservation, Oregon. These are fruit fragments and seeds of Rocky Mountain pond-lily (*Nuphar lutea* subsp. *polysepala*) (CDFA Report No. 3405).


*Cat. No. 1–12612*

## Grass Family (Poaceae)

The shifting kaleidoscope of color in California's open areas included not only many kinds of wildflowers, but also numerous shades of green and gold reflected in tufted and rhizomatous native grasses. We know that the grains of many kinds of edible grasses were collected. For example, anthropologist Ralph L. Beals, published in 1933 that the Nisenan ate "all sorts of grass seeds," but none of these were ever identified as to kind. The record of useful native grasses is very incomplete because of two major factors: (1) as cattle, sheep, goats, and pigs spread out over the open range, Native Americans were forced to shift their diets to store-bought grains; and (2) the flora had significantly changed by the time ethnographers recorded information about Indian cultures due to fire suppression and the introduction of exotic annual grasses.

The PAHMA collections provide a record of five edible grasses harvested by Indian tribes not recorded anywhere else. The seeds of reed canarygrass (*Phalaris arundinacea* L.), a widespread grass along wet streambanks, grasslands, and woodlands through-

out the California Floristic Province (Anderson 1993), were gathered by the Klamath (fig. 163). Pale false mannagrass—also known as weak mannagrass (*Torreyochloa pallida* var. *pauciflora* (J. Presl) J.I. Davis) grows below 3,500 meters in wet areas of forests, and along stream and lake margins (Davis 1993), and its seeds were also harvested by the Klamath (fig. 164). The Pomo harvested the seeds of annual semaphoregrass, also known as Davy's semaphoregrass (*Pleuropogon californicus* (Nees) Benth. ex Vasey var. *davyi* (L.D. Benson) But), which grows in wet places in coastal redwood and

**Figure 163** Reed canarygrass (*Phalaris arundinacea*)

*Sheri Hagwood*
*USDA–NRCS PLANTS Database*

**Figure 164** Pale false mannagrass (*Torreyochloa pallida* var. *pauciflora*)

*Sheri Hagwood*
*USDA–NRCS PLANTS Database*

oak forests (Barkworth 1993) (figs. 165 and 166). To our knowledge, the grains of slender hairgrass (*Deschampsia elongata* (Hook.) Munro) are not recorded as having been eaten anywhere in the California, yet here we have an account of the Maidu eating the grains of this grass (fig. 167). Additionally, the grains of Eureka dunegrass (*Swallenia alexandrae* (Swallen) Söderst. & Decker) may have been eaten by the Panamint (figs. 168 and 169).

**Figure 165** Annual semaphoregrass (*Pleuropogon californicus*)

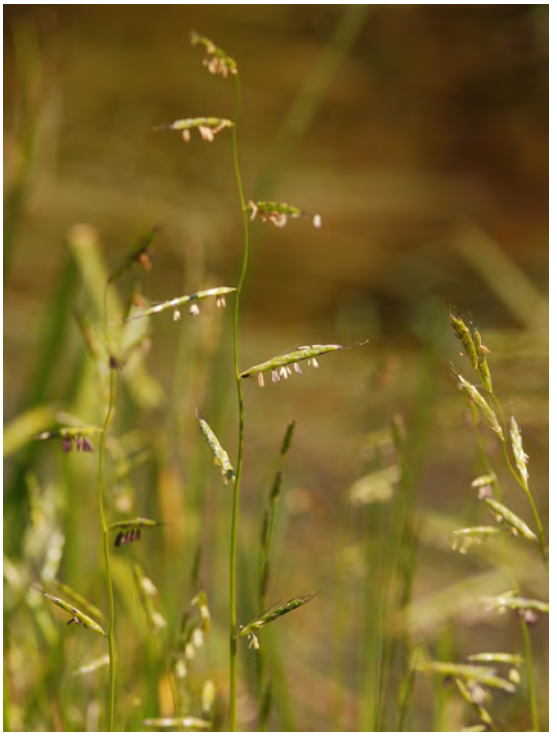




**Figure 166** Annual semaphoregrass or Davy's semaphoregrass (*Pleuropogon californicus*)

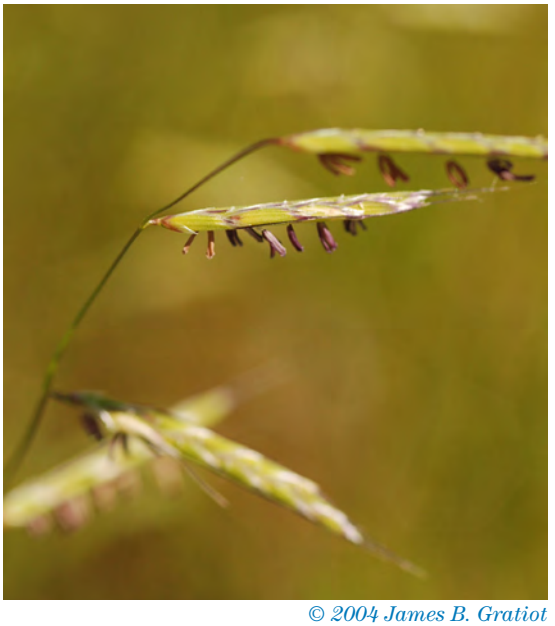


**Figure 167** Slender hairgrass (*Deschampsia elongata*)

*Susan McDougall*
*USDA–NRCS PLANTS Database*

**Figure 168** Eureka dunegrass (*Swallenia alexandrae*)

*Gary A. Monroe*
*USDA–NRCS PLANTS Database*

**Figure 169** Eureka dunegrass (*Swallenia alexandrae*)

*Gary A. Monroe*
*USDA–NRCS PLANTS Database*

According to written sources, the grains of Indian ricegrass (*Achnatherum hymenoides* (Roem. & Schult.) Barkworth) were gathered by the Kawaiisu and the Paiute (Moerman 1998) (figs. 170 and 171). From the PAHMA collections, the Panamint may also have eaten these grains.

**Figure 170** Indian ricegrass (*Achnatherum hymenoides*)

*© 2000 Gary A. Monroe*

**Figure 171** Indian ricegrass (*Achnatherum hymenoides*)

*© 2007 Thomas Stoughton*

One of the important edible native grasses that were recorded is California brome *(Bromus carinatus* Hook. & Arn.) (fig. 172). The seeds were eaten by the Western Mono, and it used to cover large areas of the Jose Basin in Sierra National Forest when the mixed conifer forests were much more open (Anderson 2005a). It was widely eaten—from the Kumeyaay on the Mexican border all the way up to Mendocino County. The grains of California brome were eaten by the Pomo, Yuki, and Nisenan (Chesnut 1974:312; Shipek 1991:86; Powers 1976:425). Samuel A. Barrett collected samples of edible grains from the Yuki on Round Valley Reservation in 1907, and these are identified as mountain brome (*Bromus marginatus* Nees ex Steud), also known as a variety of California brome (*Bromus carinatus* Hook. & Arn. var. *marginatus* (Nees ex Steud.) Barkworth & Anderton). As nonnative bromes replaced the native bromes, they became part of Indian diets including ripgut brome (*Bromus diandrus* Roth), soft brome *(Bromus hordeaceus* L.), and cheatgrass (*Bromus tectorum* L.) (Barrett and Gifford 1933:152; Schenck and Gifford 1952:380; and Bean and Saubel 1972:48).

**Figure 172** California brome (*Bromus carinatus*)

*Lockeford PMC, USDA–NRCS PLANTS Database*

The native California oatgrass (*Danthonia californica* Bol.) was probably replaced with the nonnative wild oat (*Avena fatua* L.), introduced from southern Europe (DiTomaso and Healy 2007) (fig. 173). Wild oat grains were widely eaten in California and they were so thoroughly incorporated into the Pomo diet that a special dance was held for them (Powers 1976:181). The grains were prepared in many ways, ground into a pinole and eaten dry; ground into flour and water added to mold into cakes; or cooked as a mush. Goodrich, Lawson, and Parrish Lawson (1980:85–86) beautifully describe how Pomo women gathered and processed wild oat as pinole:

"The grain [*Avena fatua*] was used in pinole, a very fine dry meal… The seeds were gathered in June or July when the first warm inland winds come to dry the grasses, causing them to throw their seeds. The women used to watch for these winds, knowing when they come there will only be a few days to gather the seeds before they fall to the ground. The seeds were beaten from the grass tops with a basketry seed beater into a tightly woven burden basket. Before storing, the seeds were winnow[ed] in a work tray by rubbing until the chaff loosened. The seed was tossed into the air, the heavier grain falling back in the basket, the lighter chaff blowing away in the wind. The grain was parched by placing some in a circular coiled tray basket with some tan oak coals and shaken back and forth. Small amounts were prepared as needed. The grain was pounded in a hopper mortar until it became a fine powder. Different combinations [of wildflower seeds and grains] could be mixed for different flavors."

**Figure 173** Wild oat (*Avena fatua*)

**Figure 174** In 1902, Samuel A. Barrett collected the seeds of wild oat from the Pomo of Coyote Valley in Mendocino County and recorded them as used for food. The main sample component is wild oat (*Avena fatua*) florets (CDFA Report No. 3436).


*Cat. No. 1–2917*

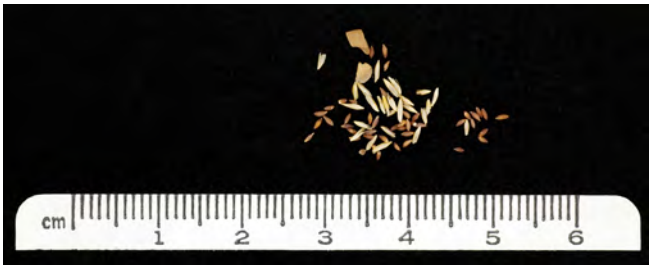
**Figure 175** In 1904, Samuel A. Barrett acquired these seeds from the Pomo of Yokaia Rancheria, 7 miles south of Ukiah and recorded their use for food. These are florets of annual semaphoregrass, also known as Davy's semaphoregrass (*Pleuropogon californicus)* (CDFA Report No. 3403).


*Cat. No. 1–4462*

**Figure 176** Roland Dixon acquired seeds from the Maidu and recorded their use as a food. These are identified as slender hairgrass (*Deschampsia elongata*) florets (CDFA Report No. 3754).


*Cat. No. 1–7405 (1 of 2)*

**Figure 177** Roland Dixon acquired seeds from the Maidu and recorded their use as a food. These are identified as slender hairgrass (*Deschampsia elongata*) florets (CDFA Report No. 3755).




*Cat. No. 1–7405 (2 of 2)*

**Figure 178** In 1907, Samuel A. Barrett acquired the seeds of wild oat from the Yuki of Round Valley and recorded their Indian name as *wócetkaletc* and that they were a food source. The primary component of the sample is wild oat (*Avena fatua*) florets (CDFA Report No. 3416).


*Cat. No. 1–11981*

**Figure 179** In July of 1907, Samuel A. Barrett acquired unthreshed seeds from the Yuki at Round Valley. He recorded the Indian name as *kop* and noted their use as a food source. These are identified as florets of mountain brome (*Bromus marginatus*) (also known as *Bromus carinatus* var. *marginatus*) (CDFA Report No. 3415).


*Cat. No. 1–11911A*

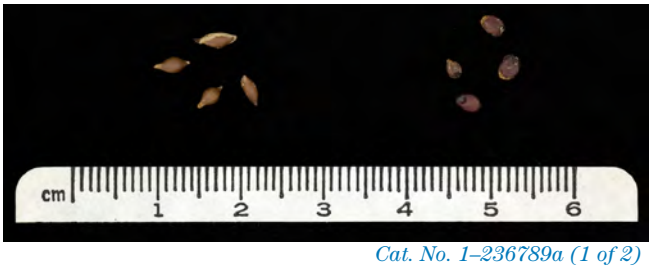
**Figure 180** In 1907, Samuel A. Barrett acquired seeds on the Klamath Reservation, Oregon, and recorded their Indian name as *skolaiam* and noted that they were a source of food. The sample consists of florets and spikelets of reed canarygrass (*Phalaris arundinacea*) (CDFA Report No. 3404).


*Cat. No. 1–12708*

**Figure 181** In 1907, Samuel A. Barrett collected seeds (*nutak*) from the Klamath Reservation. This is a mixture of the fruits of western dock (*Rumex occidentalis*) (right) and the florets of pale false mannagrass, also known as weak mannagrass (*Torreyochloa pallida* var. *pauciflora*) (left) (CDFA Report No. 3476).


*Cat. No. 1–12709*

**Figure 182** In 1975, Mary Dedecker found a water bottle pitched with singleleaf pine pitch (*Pinus monophylla*) in the Last Chance Mountains in Inyo County that contained seeds potentially utilized by the Panamint. The sample contains florets of Indian ricegrass (*Achnatherum hymenoides*) (left) and caryopses of Eureka dunegrass (*Swallenia alexandrae*) (right) (CDFA Report No. 3771).




*Cat. No. 1–236789a (1 of 2)*

**Figure 183** In 1975, Mary Dedecker found a water bottle pitched with singleleaf pine pitch (*Pinus monophylla*) in the Last Chance Mountains in Inyo County that contained seeds potentially utilized for food by the Panamint. The sample contains fruits of desert twinbugs (*Dicoria canescens*) (bottom right), florets of Indian ricegrass (*Achnatherum hymenoides*) (top left), caryopses of Eureka dunegrass (*Swallenia alexandrae*) (top right), and seeds of a sage (*Salvia* sp.) (not shown here). The pile on the bottom left is unidentified inert matter (CDFA Report No. 3772).


*Cat. No. 1–236789b (2 of 2)*

## Project Significance

Projects such as this are important because they return ethnobotanical knowledge back to Indian tribes; they give us a more complete picture of the indigenous diets in different regions; they substantiate what is reported in the anthropological and historical literature with the physical evidence of plant parts; they give us an idea of the composition of the flora (native and nonnative plant species) in areas where native women gathered seeds. Many of the seed collections were made in the early 1900s, and they are laced with nonnative seeds. Ecologist and weed expert John Randall says with regard to the nonnative seeds: "These data could be explored for possible first records of the presence of certain nonnative plant species in the State, region of the State, or county" (pers. comm. 2010).

In some cases, food seeds are documented for a tribe in this report that appear nowhere else in the literature. For example, the Sierra Miwok ate the seeds of chia, but this information is not recorded in Barrett and Gifford's 1933 *Miwok Material Culture* or other ethnographic literature. The Wailaki ate the seeds of the California compassplant, but to our knowledge, this is not recorded in the ethnographic literature on the Wailaki tribe. We know that tribes of southern California such as the Cahuilla, Kumeyaay, and Luiseño harvested the seeds of thistle sage for food. But with evidence from the PAHMA collections, we now know that the Chukchansi also gathered the seeds of this plant for their diet.

Studies such as this can also connect specific species with their Indian names. Sometimes the Indian name for the plant is on the museum accession card, but the plant remains unidentified. Once a plant species is identified, the Indian name can be matched with the scientific and common English name. For example, the Maidu name for an unidentified plant is *o'kwàm*, from which the edible seeds were collected by R.B. Dixon in August of 1904. With the CDFA PPDC–SSL identification, we know that this is slender hairgrass.

It is evident how thoroughly indigenous people explored the edibility of their local flora, by finding that the Panamint may have eaten the grains of Eureka dunegrass, a grass that has limited distribution. According to the *Flora of North America*, this species is

only known to grow in four sites, between 900 and 1,200 meters, in the Eureka Valley of northern Inyo County (Barkworth et al. 2003). Additionally, the fact that anthropologists acquired seeds of certain species in the dead of winter, such as January, shows that different tribes stored seeds for future use.

A more complete record of traditional foods can provide a broader diversity of native plants to select from for rebuilding native food systems. Reestablishing some of these foods in Native American diets could help prevent or combat the modern diseases of obesity, diabetes, heart disease, and hypertension (Berzok 2005).

## References


Anderson, D. Phalaris. 1999. *In* The Jepson Manual : Higher Plants of California. J.C. Hickman (ed.). University of California Press, Berkeley, CA. pp. 1281–1282.

Anderson, M.K. 2001. The contribution of ethnobiology to the reconstruction and restoration of historic ecosystems. *In* The Historical Ecology Handbook: A Restorationist's Guide to Reference Ecosystems. Island Press, Washington, DC. pp. 55–72.

_____. 2005a. Tending the wild: Native American knowledge and the management of California's natural resources. University of California Press, Berkeley, CA.

_____. 2005b. Final report to the Oakland museum: Identification of the fungi, insects, and plant parts of the Charles P. Wilcomb collection.

Anderson, M.K., and E. Wohlgemuth. 2012. California Indian proto-agriculture: its characterization and legacy. *In* Biodiversity in Agriculture: Domestication, Evolution, and Sustainability. P. Gepts, T.R. Famula, R.L. Bettinger, S.L. Brush, A.B. Damania, P.E. McGuire, and C.O. Qualset, (eds.). Cambridge University Press, U.K. pp. 190–224.

Baker, M.A. 1981. The Ethnobotany of the Yurok, Tolowa, and Karok Indians of Northwest California. Unpublished Masters Thesis. Humboldt State University, Arcata, CA.

Baldwin, B.G., and S.J. Bainbridge. 1993. Layia. *In* The Jepson Manual : Higher Plants of California. J.C. Hickman (ed.). University of California Press, Berkeley, CA. pp 300–303.

Barbour, M.G., and J. Major (eds.). 1988. Terrestrial vegetation of California. California Native Plant Society, Sacramento, CA. New expanded version.

Barkworth, M.E. 1993. Pleuropogon semaphore grass. *In* The Jepson Manual : Higher Plants of California. J.C. Hickman (ed.). University of California Press, Berkeley, CA. pp. 1283–1284.

Barkworth, M.E., K.M. Capels, S. Long, and M.B. Piep (eds.). 2003. Flora of North America, Vol. 25 Magnoliophyta: Commelinidae (in part): Poaceae, part 2. Oxford University Press, Inc. New York, NY. 783 pp.

Barrett, S.A. 1952. Material aspects of Pomo culture. Bulletin of the Public Museum of the City of Milwaukee 20(1):1–260.

Barrett, S.A., and E.W. Gifford. 1933. Miwok Material Culture. Bulletin of the Public Museum of the City of Milwaukee 2(4):117–376.

Barrows, D.P. 1967. Ethnobotany of the Coahuilla Indians. Malki Museum Press. Morongo Indian Reservation. Banning, CA. p. 82.

Beals, R L. 1933. Ethnology of the Nisenan. University of California Publications in American Archaeology and Ethnology 31(6):335–414.

Bean, L.J., and K.S. Saubel. 1972. Temalpakh: Cahuilla Indian knowledge and usage of plants. Morongo Indian Reservation. Malki Museum Press, Banning, CA.

Beard, Y.S. 1979. The Wappo: a report. 2nd ed. Morongo Indian Reservation, Malki Museum Press. Banning, CA.

Berzok, L. M. 2005. American Indian Food. Greenwood Press, Westport, CT.

Bocek, B.R. 1984. Ethnobotany of Costanoan Indians, California, based on collections by John P. Harrington. Economic Botany 38(2):240–55.

Bossard, C.C., J.M. Randall, and M.C. Hoshovosky (eds.). 2000. Invasive plants of California's wildlands. University of California Press, Berkeley, CA.

Boyd, R. 1999. Strategies of Indian burning in the Willamette Valley. *In* Indians, Fire, and the Land in the Pacific Northwest. Oregon State University Press, Corvallis, OR.

Boynton, S.R. 1978. The painter lady: Grace Carpenter Hudson. Sun House Guild. Ukiah, CA.

Castetter, E.F., and W.H. Bell. 1951. Yuman Indian agriculture: primitive subsistence on the Lower Colorado and Gila Rivers. University of New Mexico Press, Albuquerque, NM.

Chesnut, V. K. 1974 reprinted. Plants used by the Indians of Mendocino County California. Contributions from the U.S. National Herbarium Vol. VII. Mendocino, CA.

Coville, F.V. 1892. The Panamint Indians of California. The American Anthropologist 5:4(351–362).

_____. 1897. Notes on the plants used by the Klamath Indians of Oregon. Contributions to the U.S. National Herbarium 5(2):87–108.

_____. 1904. Wokas, a primitive food of the Klamath Indians. Smithsonian Institution. U.S. National Museum, Washington DC.

Curtis, E.S. 1924. The Yokuts. The North American Indian, Vol. 14. Johnson Reprint Corporation. New York, NY.

Curtis, E.S. 1926. Southern California Shoshoneans. The North American Indian, Vol 15. Johnson Reprint Corporation. New York, NY.

Davis, J.I. 1993. Torreyochloa. *In* The Jepson Manual : Higher Plants of California. J.C. Hickman (ed.). University of California Press, Berkeley, CA. p. 1299.

Deur, D. 2009. A caretaker responsibility: revisiting Klamath and Modoc traditions of plant community management. Journal of Ethnobiology 29(2):296–322.

DiTomaso, J.M., and E.A. Healy. 2007. Weeds of California and other Western States, Vols. I and II. University of California Agriculture and Natural Resources Publication 3488. Oakland, CA.

Dixon, R.B. 1905. The Huntington California Expedition. The Northern Maidu. Bulletin of the American Museum of Natural History 17(3):119-346.

Drucker, P. 1939. Culture element distributions V: Southern California. University of California Anthropological Records 1:1–51.

Duncan, J.W. 1964. Maidu ethnobotany. Master's Thesis. California State University, Sacramento, CA.

Essene, F. 1942. Culture element distributions: XXI Round Valley. Anthropological Records 8(1):1–97.

Fowler, C.S.1986. Subsistence. *In* Handbook of North American Indians, Vol. 11 Great Basin. W.L. D'azevedo (ed.). Smithsonian Institution. Washington DC. pp. 64–97.

_____. 1989. Willard Z. Park's Ethnographic notes on the Northern Paiute of Western Nevada 1933–1940. University of Utah Press, Salt Lake City, UT.

Ganders, F.R. 1993. Plectitis. *In* The Jepson Manual : Higher Plants of California. J.C. Hickman (ed.). University of California Press, Berkeley, CA. p. 1084.

Garth, T.R. 1953. Atsugewi ethnography. University of California Anthropological Records 14(2):129–212.

Gayton, A.H. 1948. Yokuts and Western Mono Ethnography I: Tulare Lake, Southern Valley, and Central Foothill Yokuts. University of California Press. Berkeley and Los Angeles, CA. 144 pp.

Gerlach, J.D. 1998. How the West was lost: Reconstructing the invasion dynamics of yellow star-thistle and other plant invaders of western rangelands and natural areas. *In* Proceedings of the California Exotic Pest Plant Council Symposium, 3:1997. M. Kelly, E. Wagner, and P. Warner (eds.). pp. 67–72.

Gifford, E.W. 1932. The Northfork Mono. Univ. of CA Publications in Am. Arch. and Ethnology, Vol 31. University of California, Berkeley. pp. 15–65.

Goodrich, J., C. Lawson, and V. Parrish-Lawson. 1980. Kashaya Pomo Plants. American Indian Studies Center. University of California, Los Angeles, CA.

Harrington, J.P. 1942. Culture element distributions: XIX Central California coast. Anthropological Records 7:1. University of California Press, Berkeley, CA. pp. 1–46.

Haskin, L.L. 1934. Wild flowers of the Pacific Coast. Metropolitan Press. Portland, OR.

Hedges, K., and C. Beresford. 1986. Santa Ysabel Ethnobotany. San Diego Museum of Man Ethnic Technology Notes No. 20. 58 pp.

Hickman, J.C. (ed.). 1993. The Jepson Manual: higher plants of California. University of California Press, Berkeley, CA. 1400 pp.

Holmes, L.C., E.C. Hickmann, J.W. Nelson, and J.E. Guernsey. 1919. Reconnaissance soil survey of the middle San Joaquin Valley, California. U.S. Government Printing Office, Washington DC.

Hudson, J. n.d. Field Notebook. G.H.M. Acc. No. 20,021. Collection of Grace Hudson Museum and Sun House, Ukiah, CA.

Immel, D.L. 2007. Two research approaches to ecocultural restoration in California: experimental reintroduction of showy Indian clover and reconstructing an ethnobotany of the Salinan Tribe. Ph.D. Dissertation, University of California, Davis, CA.

Jacknis, I. (ed.). 2004. Food in California Indian Culture. Phoebe Hearst Museum of Anthropology. University of California, Berkeley, CA.

Johnston, B.J. 1962. California's Gabrielino Indians. Frederick Web Hodge Anniversary Publication Fund 8. Southwest Museum, Los Angeles, CA.

Keeler-Wolf, T., J.M. Evens, A.I. Solomeshch, V.L. Holland, and M.G. Barbour. 2007. Community classification and nomenclature. *In* California Grasslands: Ecology and Management. Stromberg, M.R., J.D. Corbin, and C.M. D'Antonio (eds.). University of California Press, Berkeley, CA.

Kroeber, A.L. 1976. Handbook of the Indians of California. Reprinted from the 1925 Bureau of American Ethnology Bulletin 78. U.S. Government Printing Office, Washington, DC.

Kroeber, T. 1970. Alfred Kroeber: A Personal Configuration. University of California Press, Berkeley, CA.

Lerch, M.K. 2002. Ethnobotanical Resources of the Arrowhead East/West Tunnel Study Area, San Bernardino National Forest, San Bernardino County, California. Statistical Research, Inc. Draft Final Report for USDA Forest Service San Bernardino National Forest, San Bernardino, CA. Technical Report 00–52.

Lowry, J.L. 2009. The scent of summer. Bay Nature: An Exploration of Nature in the San Francisco Bay Area 9(3):10.

Minnich, R.A. 2008. California's fading wildflowers: lost legacy and biological invasions. University of California Press, Berkeley, CA.

Moerman, D.E. 1998. Native American Ethnobotany. Timber Press, Portland, OR.

Morgan, D.L., and J.R. Scobie. 1964. Three years in California: William Perkins' Journal of Life at Sonora, 1849–1852. University of California Press. Berkeley, CA.

Parsons, M.E. 1955. The wild flowers of California. California Academy of Sciences, San Francisco, CA.

Payne, W.W. 1993. Dicoria. *In* The Jepson Manual : Higher Plants of California. J.C. Hickman (ed.). University of California Press, Berkeley, CA. p. 246.

Powers, S. 1976. Tribes of California. University of California Press, Berkeley, CA.

Randall, J.M., and M.C. Hoshovsky. 2000. California's wildland invasive plants. *In* Invasive Plants of California Wildlands, C.C. Bossard and J.M. Randall (eds.). University of California Press, Berkeley, CA. pp. 11–27.

Renfro, E. 1992. The Shasta Indians of California and their neighbors. Naturegraph Publishers, Inc. Happy Camp, CA.

Rollins, R.C. 1993. Brassicaceae [Cruciferae] Mustard Family. *In* The Jepson Manual : Higher Plants of California. J.C. Hickman (ed.). University of California Press, Berkeley, CA. pp. 392–448.

Sauer, C.O. 1952. Seeds, Spades, Hearths, and Herds: The Domestication of Animals and Foodstuffs. 1969—Second Edition. The MIT Press, Cambridge, MA.

Schenck, S.M., and E.W. Gifford. 1952. Karok ethnobotany. Anthropological Records 13(6):377–92.

Schiffman, P.M. 2007. Species composition at the time of first European settlement. *In*: Chapter 4: Pleistocene and pre-European grassland ecosystems. *In* California Grasslands: Ecology and Management. Stromberg, M.R., J.D. Corbin, and C.M. D'Antonio (eds.). University of California Press, Berkeley, CA. pp. 52–56.

Shipek, F.C. 1991. Delfina Cuero. Ballena Press, Menlo Park, CA.

Sparkman, P.S. 1908. The culture of the Luiseño Indians. University of California Publications in Archaeology and Ethnology 8(4):187–234.

Steward, J.H. 1933. Ethnography of the Owens Valley Paiute. University of California Publications in American Archaeology and Ethnology 33(5):423–438.

_____. 1934. Two Paiute autobiographies. University of California Publications in American Archaeology and Ethnology 33(5):423–38.

Stromberg, M.R., J.D. Corbin, and C.M. D'Antonio (eds.). 2007. California Grasslands: Ecology and Management. University of California Press, Berkeley, CA.

Timbrook, J. 2007. Chumash Ethnobotany: Plant knowledge among the Chumash people of Southern California. Santa Barbara Museum of Natural History, Santa Barbara, California and Heyday Books, Berkeley, CA.

U.S. Department of Agriculture, Agricultural Research Service. National Genetic Resources Program. *Germplasm Resources Information Network (GRIN)* [online database]. National Germplasm Resources Laboratory, Beltsville, MD. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl (14 December 2010).

U.S. Department of Agriculture, Natural Resources Conservation Service. 2010. The PLANTS Database (http://plants.usda.gov) (15 December 2010). National Plant Data Center, Baton Rouge, LA.

Vaghti, M.G., and S.E. Greco. 2007. Riparian vegetation of the Great Valley. *In* Terrestrial Vegetation of California. M.G. Barbour, T. Keeler-Wolf, and A.A. Schoenherr (eds). 3rd ed. University of California Press, Berkeley, CA. pp. 425–455.

Voegelin, E.W. 1938. Tubatulabal Ethnography. Anthropological Records, Vol 2:1. pp. 1–84.

Zigmond, M.L. 1981. Kawaiisu Ethnobotany. University of Utah Press. Salt Lake City, UT. 102 pp.

# Index

# Appendix: Phoebe Apperson Hearst Museum of Anthropology Lab Reports

This page intentionally left blank.

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3398** | 06/25/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2893; Coll. S. A. Barrett, 1902
Seeds of *Carum kelloggii,* food;
Pomo, Yokaia Rancheria, 7 mi. S. of Ukiah

## Laboratory Results:

The main component of the specimen consists of mericarps of *Perideridia* sp., possibly *Perideridia kelloggii* (A. Gray) Mathias, Kellogg's yampah, Apiaceae.

Other items found and placed in gelatin capsules:
8 achenes of *Madia sativa* Molina, coast tarweed, Asteraceae
4 achenes of *Hemizonia congesta* DC., hayfield tarweed, Asteraceae
1 fruits of *Rumex* sp., dock, Polygonaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3399** | 06/25/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2902; Coll. S. A. Barrett, 1902; Specimen, ethnobotanical; seeds, *Carum kelloggii;* California, Mendocino City, Yokaia Rancheria (7mi. S. of Ukiah); Pomo

## Laboratory Results:

1-2902 (B) - The main component of the specimen consists of mericarps of *Perideridia* sp., possibly *Perideridia kelloggii* (A. Gray) Mathias, Kellogg's yampah, Apiaceae.

Other items found and placed in gelatin capsules:
1 immature achene of *Madia sp.*, tarweed, Asteraceae
1 achene of *Hemizonia congesta* DC., hayfield tarweed, Asteraceae
1 floret of *Pleuropogon californicus* (Nees) Benth. ex Vasey var. *davyi* (L. D. Benson) But, Davy's semaphoregrass, Poaceae
1 floret of *Bromus commutatus* Schrad., hairy chess, Poaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3400** | 06/25/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2902; Coll. S. A. Barrett, 1902; Specimen, ethnobotanical; seeds, *Carum kelloggii;* California, Mendocino City, Yokaia Rancheria (7mi. S. of Ukiah); Pomo

## Laboratory Results:

1-2902 (A) - The specimen consists of mericarps of *Perideridia* sp., possibly *Perideridia kelloggii* (A. Gray) Mathias, Kellogg's yampah, Apiaceae.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3401** | 06/25/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-11917; Coll. S. A. Barrett, July 1907; Anise seeds; Round Valley, Yuki

## Laboratory Results:

The main component of the specimen consists of mericarps of *Perideridia* sp., possibly *Perideridia kelloggii* (A. Gray) Mathias, Kellogg's yampah, Apiaceae.

Other item found and placed in gelatin capsule:
1 floret of *Lolium temulentum* L., darnel, Poaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3402** | 06/25/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2906; Coll. S. A. Barrett, July 1902; Seeds used as food; Pomo, Yokaia Rancheria, 7 mi. S. of Ukiah

## Laboratory Results:

The specimen consists of fruits and plant fragments of *Lomatium dissectum* (Nutt.) Mathias & Constance, Lomatium, Apiaceae.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3403** | 06/25/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-4462; Coll. S. A. Barrett, June 1904; Specimen, ethnobotanical; seeds; California, Mendocino City, Yokaia Rancheria (7 mi. S. of Ukiah); Pomo

## Laboratory Results:

The main component of the specimen consists of florets of *Pleuropogon californicus* (Nees) Benth. ex Vasey var. *davyi* (L. D. Benson) But, Davy's semaphoregrass, Poaceae. One floret opened to remove caryopsis for diagnostic measurement (placed in gelatin capsule).

Other items found and placed in gelatin capsules:
1 spikelet of *Alopecurus saccatus Vasey,* Pacific foxtail, Poaceae
1 fruit of *Rumex* sp., dock, Polygonaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3404** | 06/25/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12708; Coll. S. A. Barrett, 1907; Seed (skolaiam) used as food; Klamath Reservation, Oregon

## Laboratory Results:

The main component of the specimen consists of florets and spikelets of *Phalaris arundinacea* L., reed canarygrass, Poaceae.

Other items found and placed in gelatin capsule:
Insect parts and rodent excrement

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3405** | 06/26/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12612

## Laboratory Results:

The specimen consists of fruit fragments and seeds of *Nuphar polysepala* Engelm. [*Nuphar lutea* (L.) Sm. subsp. *polysepala* (Engelm.) E. O. Beal], Rocky Mountain pond-lily, Nymphaeaceae

Note: nomenclature based on USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?25419 (26 June 2009)

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3406** | 06/26/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12611; Wokas (slulpalc)

## Laboratory Results:

The specimen consists of fruit fragments and seeds of *Nuphar polysepala* Engelm. [*Nuphar lutea* (L.) Sm. subsp. *polysepala* (Engelm.) E. O. Beal], Rocky Mountain pond-lily, Nymphaeaceae

Note: nomenclature based on USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?25419 (26 June 2009)

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3407** | 06/26/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12279; Wokas, unparched

## Laboratory Results:

The specimen consists of fruit fragments and seeds of *Nuphar polysepala* Engelm. [*Nuphar lutea* (L.) Sm. subsp. *polysepala* (Engelm.) E. O. Beal], Rocky Mountain pond-lily, Nymphaeaceae

Note: nomenclature based on USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?25419 (26 June 2009)

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3415** | 06/26/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-11911A; Coll. S. A. Barrett, July 1907; Round Valley, Yuki; unthreshed seeds (2 bottles); kop wild oat-like grain

## Laboratory Results:

The main component of the specimen consists of florets of *Bromus carinatus* Hook. & Arn. var. *marginatus* (Nees) Barkworth & Anderton, mountain brome, Poaceae. The anthers of seven florets were removed from the florets for diagnostic measurement used for species determination. Each of the seven florets and their associated anthers are preserved in separated capsules.

Other items found and placed in a gelatin capsule:
6 florets of *Bromus hordeaceus* L., soft chess, soft brome, lopgrass, or brome mou, Poaceae.

Note: The nomenclature for mountain brome follows the treatment in Barkworth, M. E. et al. (eds.), 2007, Flora of North America, Vol. 24, Poaceae, part 1, Oxford Univ. Press.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3416** | 06/26/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-11981; Coll. S. A. Barrett, July 1907; Round Valley, Yuki; oats, said to be wild oats, wócetkaletc

## Laboratory Results:

The main component of the specimen consists of florets of *Avena fatua* L., wild oat, Poaceae.

Other items found and placed in gelatin capsules:
20 florets of *Bromus hordeaceus* L., soft chess, soft brome, lopgrass, or brome mou, Poaceae
1 floret of *Vulpia bromoides* (L.) Gray, brome fescue or squirreltail fescue, Poaceae
1 floret of *Elymus* sp., Poaceae
1 awn from the fruit of *Erodium* sp., filaree, Geraniaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3417** | 07/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-28782; Chia and other seeds

## Laboratory Results:

The specimen is a mixture of nutlets of two *Salvia* species. Lamiaceae. The larger nutlets compare with *Salvia carduacea* Benth., thistle sage and the smaller nutlets compare with *Salvia columbariae* Benth., chia.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3418** | 07/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12996; seed of sage

## Laboratory Results:

The specimen consists of nutlets that compare best with *Salvia* sp., possibly *Salvia apiana* Jeps., white sage, Lamiaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3419** | 07/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-4023

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae.

Other items found and placed in gelatin capsules:
23 seeds of unknown Brassicaceae.
7 seeds of *Gilia* sp., gilia, Polemoniaceae.
2 nutlets of *Plagiobothrys* sp., popcornflower, Boraginaceae.
1 nutlet of *Amsinckia* sp., fiddleneck, Boraginaceae.
1 seed of *Phacelia* sp., phacelia, Hydrophyllaceae.
1 seed of *Epilobium* sp., willowherb, Onagraceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3420** | 06/26/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10347; Coll. S. A. Barrett, 1906; California, Mariposa County, Colorado (5mi. NE of Mariposa); Miwok; Specimen, ethnobotanical; seeds, glossy, light brown

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae.

Other items found and placed in gelatin capsules:
53 seeds of *Gilia* sp., gilia, Polemoniaceae.
28 achenes of *Madia elegans* Lind., common madia, Asteraceae.
25 seeds of unknown Brassicaceae.
8 seeds of *Silene antirrhina* L., sleepy catchfly, Caryophyllaceae.
4 nutlets of *Plagiobothrys* spp., popcornflower, Boraginaceae.
1 floret of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae.
2 achenes of *Agoseris* sp., agoseris, Asteraceae.
1 seed of *Claytonia perfoliata* Willd., miner's lettuce, Portulacaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3421** | 06/26/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12283; Coll. S. A. Barrett, 1907; U.S., Oregon, Klamath Reservation; seed, brown, fine; used as food when parched and ground

## Laboratory Results:

The main component of the specimen consists of seeds and fruit fragments of *Descurainia sophia* (L.) Webb ex Prantl, flixweed, Brassicaceae. Native to Eurasia. Note: Some fruits more than 1 mm wide having more than 12 seeds. Identification based on treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press.

Other items found and placed in gelatin capsules:
12 Fruits of *Capsella bursa-pastoris* (L.) Medik., shepherd's-purse, Brassicaceae.
9 Florets of *Bromus* cf*. hordeaceus* L., soft chess, Poaceae.
4 Fruits of *Polygonum* cf. *aviculare* L., prostrate knotweed, Polygonaceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3422** | 06/26/2009 |

Applicant:

Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:

Cat. # 1-12710; Coll. s. A. Barrett, 1907; Klamath Reservation, Oregon; very fine seed (chipas) used as food.

## Laboratory Results:

The specimen consists of seeds and fruit fragments of *Descurainia incana* (Bernh. ex Fisch. & C. A. Mey.) Dorn, gray tansy mustard, Brassicaceae. Native to California. Note: Some fruits 9 mm long 1.2 mm wide 5 seed per pod. Identification based on treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3423** | 06/26/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12793; Coll. s. A. Barrett, 1907; Klamath Reservation, Oregon; seeds (chipas), used as food.

## Laboratory Results:

The specimen consists of mixture of seeds and fruit fragments of *Descurainia sophia* (L.) Webb ex Prantl, flixweed, a native of Eurasia, and *Descurainia incisa* (Engelm. ex A. Gray) Britton, mountain tansymustard, a California native, both members of the Brassicaceae. Note: Some fruits are less than 1 mm wide and are classified as *D. incisa*. Identification based on treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press.

Other items found and placed in gelatin capsules:
155 Seeds of *Mentzelia* sp., Loasaceae
11 Nutlets of *Amsinckia* sp., Boraginaceae
9 Seeds of *Epilobium brachycarpum* C. Presl, tall annual willowherb, Onagraceae
4 fruits of *Polygonum* sp., Polygonaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3424** | 06/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-14304; Klamath Reservation, Oregon; very small red seeds, used as food

## Laboratory Results:

The specimen consists of seeds and fruit fragments of *Descurainia incana* (Bernh. ex Fisch. & C. A. Mey.) Dorn, grey tansymustard, Brassicaceae, a California native. Note: Some fruits are 8 mm long and more than 1 mm wide with 5-7 seeds. Identification based on treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press.

Other items found and placed in gelatin capsule:
25 achenes of *Matricaria discoidea DC.* [ *Chamomilla suaveolens* (Pursh) Rydb., *Matricaria matricarioides* auct., and other synonyms], pineapple-weed or rounded chamomile, Asteraceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3425** | 06/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-211558; seed sample, *Sisymbrium* sp.

## Laboratory Results:

The specimen consists of seeds and fruit fragments of *Descurainia sophia* (L.) Webb ex Prantl, flixweed, Brassicaceae. Native to Eurasia. Note: Some fruits are 24 mm long and having more than 17 seeds. Identification based on treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3426** | 06/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-211582; *Sisymbrium* (probably *incisum*)

## Laboratory Results:

The specimen consists of seeds and fruit fragments of *Descurainia sophia* (L.) Webb ex Prantl, flixweed, Brassicaceae. Native to Eurasia. Note: Some fruits are 26 mm long, 1mm wide, and having more than 14 seeds. Identification based on treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press.

Other items found and placed in gelatin capsule:
Fruit and seed comparing well with *Lepidium perfoliatum* L., clasping pepperwort, Brassicaceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3427** | 06/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10197; Coll. S. A. Barrett, 1906; Tuolumne Co., CA, Chicken Ranch, 1.5 mi. W of Jamestown; Miwok; ethnobotanical, seeds, flat curved, foodstuff.

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsule:
3 florets of *Vulpia bromoides* (L.) Gray, brome fescue, Poaceae
2 florets of *Lolium temulentum* L., Darnel ryegrass, Poaceae
2 fruits of *Erodium* sp., stork's bill, Geraniaceae
2 fruits of *Rumex* sp., dock, Polygonaceae
1 pod of *Medicago polymorpha* L., burclover, Fabaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3428** | 06/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2904; Coll. S. A. Barrett, 1902; Mendocino City, CA, Yokaia Rancheria (7 mi. S of Ukiah); ethnobotanical, seeds, *Maida namala* (?); two bottles

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia glomerata* Hook., mountain tarweed, Asteraceae.

Other items found and placed in gelatin capsules:
4 mericarps of *Torilis nodosa* (L.) Gaertn., knotted hedgeparsley, Apiaceae
2 florets of *Bromus hordeaceus* L., soft chess, Poaceae
1 achene of *Wyethia angustifolia* (DC.) Nutt., California compassplant, Asteraceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3429** | 06/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2899; Coll. S. A. Barrett, 1902; Mendocino City, CA, Yokaia Rancheria (7 mi. S of Ukiah); ethnobotanical, seeds, *Madia elegans*

## Laboratory Results:

The specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3430** | 06/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-14112; Klamath Reservation, Oregon; very small seeds, slender and slightly curved in shape; used as food

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia glomerata* Hook., mountain tarweed, Asteraceae.

Other items found and placed in gelatin capsules:
6 seeds of *Collomia* sp., trumpet, Polemoniaceae
2 fruits of *Sanguisorba annua* (Nutt.) Nutt., prairie burnet, or western burnet, Rosaceae
1 fruit segments of *Sidalcea malviflora* (DC.) A. Gray ex Benth., checkerbloom, Malvaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3431** | 06/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-11992

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsules:
6 florets of *Bromus* cf*. hordeaceus* L., soft chess, Poaceae
4 achenes of *Centaurea melitensis* L., Maltese star thistle, Asteraceae
3 fruits of *Rumex* sp., dock, Polygonaceae
2 achenes of *Anthemis cotula*, mayweed or dog fennel, Asteraceae
1 seed of *Brassica rapa*, Brassicaceae
1 floret of *Lolium temulentum* L., darnel, Poaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3432** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-4025; Seeds (owin), used as food

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. elegans* is highly variable and intermediates blur distinction among extremes.

Other items found and placed in gelatin capsules:
45 achenes of *Ranunculus californicus* Benth., California buttercup, Ranunculaceae
7 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
7 seeds of *Dichelostemma capitatum* (Benth.) Alph. Wood, bluedicks, Themidaceae (also placed in Alliaceae or Liliaceae)
2 nutlets of *Amsinckia* sp., fiddleneck, Boraginaceae
1 seed of *Luzula comosa* E. Mey., Pacific woodrush, Juncaceae
1 achene of *Potentilla glandulosa* Lindl., sticky cinquefoil cf. USDA Plants Database [*Drymocallis glandulosa* (Lindl.) Rydb. cf. nomenclature based on USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http: //www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl (07 July 2009)], Rosaceae
1 seed of *Trifolium* sp., possibly *T. obtusiflorum* Hook. & Arn., clammy clover, creek clover, or sour-salt clover , Fabaceae
1 seed of *Triteleia ixioides* (W. T. Aiton) Greene, yellow-brodiaea or prettyface, Themidaceae (also placed in Alliaceae or Liliaceae)

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3433** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10440; Flat dark brown seeds.

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. elegans* is highly variable and intermediates blur distinction among extremes.

Other items found and placed in gelatin capsules:
11 achenes of *Ranunculus californicus* Benth., California buttercup, Ranunculaceae
10 seeds of *Collinsia heterophylla* G. Buist ex Graham, purple Chinese houses, Plantaginaceae (also placed in Scrophulariaceae)
8 seeds of *Dichelostemma capitatum* (Benth.) Alph. Wood, bluedicks, Themidaceae (also placed in Alliaceae or Liliaceae)
7 seeds of *Gilia* sp., gilia, Polemoniaceae
6 seeds of *Triteleia ixioides* (W. T. Aiton) Greene, yellow-brodiaea or prettyface, Themidaceae (also placed in Alliaceae or Liliaceae)
5 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
3 seeds of *Trifolium* sp., possibly *T. obtusiflorum* Hook. & Arn., clammy clover, creek clover, or sour-salt clover, Fabaceae
2 achenes of *Potentilla glandulosa* Lindl., sticky cinquefoil cf. USDA Plants Database [*Drymocallis glandulosa* (Lindl.) Rydb. cf. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl (07 July 2009)], Rosaceae
1 seed of *Luzula comosa* E. Mey., Pacific woodrush, Juncaceae
1 floret of *Vulpia myuros* (L.) C. C. Gmel., annual fescue, Poaceae
1 floret of *Poa* sp., possibly P. secunda J. Presl, big bluegrass, Poaceae
1 seed of *Lupinus* sp., lupine, Fabaceae
1 mericarp of *Sanicula* sp., sanicle, Apiaceae
1 spikelet of *Gastridium phleoides* (Nees & Meyen) C.E. Hubbard, nit grass, Poaceae (Nomenclature follows the treatment in Barkworth, M. E. et al. (eds.), 2007, Flora of North America, Vol. 24, Poaceae, part 1, Oxford Univ. Press.)

**Identification made by:** D J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3434** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10206; Coll. S. A. Barrett 1906; Miwok, Quartz, 1 m. W of Jamestown, Tuolumne Co.; small flat brown seeds used as food; similar to but different from 1-10197

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsule:
20 seeds of *Trifolium ciliolatum* Benth., foothill clover, Fabaceae
15 florets of *Vulpia bromoides* (L.) Gray, brome fescue, Poaceae
3 achenes of *Ranunculus californicus* Benth., California buttercup, Ranunculaceae
3 seeds of *Trifolium microcephalum* Pursh, smallhead clover, Fabaceae
2 seeds of *Trifolium obtusiflorum* Hook. f., clammy clover, Fabaceae
1 nutlet of *Galium* sp., bedstraw, Rubiaceae
1 seed of *Luzula comosa* E. Mey., Pacific woodrush, Juncaceae
1 nutlet of *Salvia columbariae* Benth., chia, Lamiaceae
1 floret of *Bromus commutatus* Schrad., hairy chess, Poaceae
1 unknown achene of Asteraceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3435** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10390; Flat black seeds.

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. elegans* is highly variable and intermediates blur distinction among extremes.

Other items found and placed in gelatin capsules:
58 seeds of *Collinsia heterophylla* G. Buist ex Graham, Chinese-houses, Plantaginaceae (also placed in Scrophulariaceae)
16 seeds of *Triteleia ixioides* (W. T. Aiton) Greene, yellow-brodiaea, Themidaceae (also placed in Alliaceae or Liliaceae)
16 seeds of *Silene* sp., catchfly, Caryophyllaceae
12 seeds of *Clarkia* sp., clarkia, Onagraceae
11 seeds of *Dichelostemma capitatum* (Benth.) Alph. Wood, bluedicks, Themidaceae (also placed in Alliaceae or Liliaceae)
11 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
6 nutlets of *Salvia columbariae* Benth., chia, Lamiaceae
5 seeds of *Gilia* sp., gilia, Polemoniaceae
2 mericarps of *Sanicula* sp., sanicle, Apiaceae
2 nutlets of *Cryptantha* sp., cryptantha, Boraginaceae
1 floret of *Vulpia myuros* (L.) C.C. Gmel., rat-tail fescue, Poaceae
1 achene of *Rigiopappus leptocladus* A. Gray, wireweed, Asteraceae
1 achene of *Agoseris* sp., agoseris, Asteraceae
1 seed of *Allophyllum* sp., Grant, false gillyflower, Polemoniaceae
1 floret of *Poa secunda* J. Presl, Sandberg bluegrass, Poaceae
1 achene of *Coreopsis* sp., tickseed, Asteraceae
1 seed of *Trifolium obtusiflorum* Hook. f., clammy clover, Fabaceae
1 floret of *Gastridium phleoides* (Nees & Meyen) C. E. Hubb., nit grass, Poaceae
3 unknown

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3436** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2917; Coll. S. A. Barrett, 1902; Mendocino Co., California; Coyote Valley; Pomo; ethnobotanical; wild oats; foodstuff

## Laboratory Results:

The main component of the specimen consists of *Avena fatua* L., wild oat, Poaceae.

Other items found and placed in gelatin capsules:
27 florets of *Bromus hordeaceus* L., soft chess, Poaceae
8 florets of *Avena sativa* L., oat, Poaceae
4 florets of *Avena* sp., possibly *A. occidentalis* Durieu, Poaceae (based on treatment in Barkworth, M. E. et al. (eds.), 2007, Flora of North America, Vol. 24, Poaceae, part 1, Oxford Univ. Press.)
2 florets, fruits, and 1 seed of *Trifolium* sp., possibly *T. bifidum* A. Gray, notch-leaf clover, pinole clover, Fabaceae
1 floret, fruit and seed of *Trifolium* sp., possibly *T. dichotomum* Hook. & Arn., branched Indian clover, Fabaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3450** | 7/9/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2900; Coll. S. A. Barrett, 1902; Mendocino City, CA; Yokaia Rancheria (7 mi S of Ukiah); Pomo; ethnobotanical; seeds, hemazonia; two bottles; foodstuff

## Laboratory Results:

The main component of the specimen consists of fruits of *Hemizonia congesta* DC., hayfield tarweed, Asteraceae.

Other items found and placed in gelatin capsules:
1 seed of *Medicago sativa* L., alfalfa, Fabaceae
1 seed of an unknown legume, Fabaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3451** | 7/9/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2891 (1-2891-92); Coll. S. A. Barrett, 1902; Mendocino City, CA; Yokaia Rancheria (7 mi S of Ukiah); Pomo; ethnobotanical; -2891) tarweed seed; foodstuff

## Laboratory Results:

The main component of the specimen consists of fruits of *Hemizonia congesta* DC., hayfield tarweed, Asteraceae.

Other items found and placed in gelatin capsules:
1 seed of *Medicago sativa* L., alfalfa, Fabaceae
1 achene of *Rumex* sp., dock, Polygonaceae
1 achene of *Polygonum* sp., knotweed, Polygonaceae
1 glumes of *Avena* sp., Poaceae
1 floret of *Lolium perenne* L., perennial ryegrass, Poaceae
1 floret of *Gastridium phleoides* (Nees & Meyen) C. E. Hubb., nitgrass, Poaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3452** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-211564; *Wyethia mollis* seed

## Laboratory Results:

The specimen consists of fruits of *Wyethia* sp., possibly *W. mollis* A. Gray, woolly mule-ears, Asteraceae. Identification is based on the general size of fruits (8-11.5 mm long) and on location of collection.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3453** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2903; Coll. S. A. Barrett 1902; Mendocino City, CA; Yokaia Rancheria (7 mi S of Ukiah); Pomo; ethnobotanical, *Wyethia angustifolia* seeds; foodstuff

## Laboratory Results:

The specimen consists of fruits of *Wyethia angustifolia* (DC.) Nutt., California compassplant, Asteraceae.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3454** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12166; Coll. S. A. Barrett, July 1907; Wailaki, Round Valley; black seeds used as food; tcála seeds used for pinole

## Laboratory Results:

The specimen consists of fruits of *Wyethia angustifolia* (DC.) Nutt., California compassplant, Asteraceae.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3455** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12080; Coll. S. A. Barrett, 1907; Mendocino Co., CA, Round Valley, Wailaki; black seeds, tcá'la

## Laboratory Results:

The main component of the specimen consists of fruits of *Wyethia angustifolia* (DC.) Nutt., California compassplant, Asteraceae.

Other items found and placed in gelatin capsules:

2 florets of *Bromus hordeaceus* L., soft chess, Poaceae
2 fruits of *Sonchus asper* (L.) Hill, prickly sow thistle, Asteraceae
5 fruits of *Plectritis congesta* (Lindl.) DC., shortspur seablush, Valerianaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3456** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2913; Coll. S. A. Barrett, 1903; Mendocino City, CA; Asylum Ranch (nr Ukiah); Pomo; ethnobotanical; plant heads (Indian wheat); seeds used for food

## Laboratory Results:

The specimen consists of inflorescence heads and fruits of *Wyethia angustifolia* (DC.) Nutt., California compassplant, Asteraceae.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3457** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-11909; Coll. S. A. Barrett, July, 1907; Round Valley, Yuki; heads of a plant, the seeds of which are used for food

## Laboratory Results:

The specimen consists of inflorescence heads and fruits of *Wyethia angustifolia* (DC.) Nutt., California compassplant, Asteraceae.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3458** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10721; small, black, shiny seeds

## Laboratory Results:

The main component of the specimen consists of fruits of *Calandrinia ciliata* (Ruiz & Pav.) DC., red-maids, Portulacaceae.

Other items found and placed in gelatin capsules:

1 seed of *Lupinus* sp., lupine, Fabaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3459** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10177; Coll. S. A. Barrett, 1906; Tuolumne Co., CA; Chicken Ranch (1.5 mi W of Jamestown), Miwok; Kotca; ethnobotanical; seeds, glossy, black

## Laboratory Results:

The main component of the specimen consists of fruits of *Calandrinia ciliata* (Ruiz & Pav.) DC., red-maids, Portulacaceae.

Other items found and placed in gelatin capsules:

17 seeds of *Silene gallica* L., common catchfly, Caryophyllaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3460** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10854; very small, shiny, black seeds

## Laboratory Results:

The main component of the specimen consists of fruits of *Calandrinia ciliata* (Ruiz & Pav.) DC., red-maids, Portulacaceae.

Other items found and placed in gelatin capsules:

3 nutlets of *Salvia columbariae* Benth., chia, Lamiaceae
1 fruit of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae
1 seed of *Erodium* sp., stork's bill, Geraniaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3461** | 7/15/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10773; seeds used as food, to make pinole laka

## Laboratory Results:

The main component of the specimen consists of fruits of *Calandrinia ciliata* (Ruiz & Pav.) DC., red-maids, Portulacaceae.

Other items found and placed in gelatin capsules:

162 fruit of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae
1 seed of *Salvia columbariae* Benth., chia, Lamiaceae
1 seed of *Trifolium obtusiflorum* Hook. f., clammy clover, Fabaceae
1 seed of *Collinsia heterophylla* G. Buist ex Graham, Chinese-houses, Plantaginaceae (also placed in Scrophulariaceae)
1 seed of *Triteleia ixioides* (W. T. Aiton) Greene, yellow-brodiaea, Themidaceae (also placed in Alliaceae or Liliaceae)
1 achene of *Centaurea melitensis* L., Maltese star thistle, Asteraceae
1 seed of *Portulaca oleracea* L., purslane, Portulacaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3463** | 7/23/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12481; wokas, parched and ground

## Laboratory Results:

The specimen consists of 'puffed' seeds of *Nuphar polysepala* Engelm. [*Nuphar lutea* (L.) Sm. subsp. *polysepala* (Engelm.) E. O. Beal], Rocky Mountain pond-lily, Nymphaeaceae.

Note: nomenclature based on USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?25419 (26 June 2009)

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3464** | 7/23/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-2901; coll. S. A. Barrett, 1902; Mendocino Co., CA; Yokaia Rancheria (7mi S. of Ukiah); ethnobotanical; seeds, boisduvalia densiflora

## Laboratory Results:

The main component of the specimen consists of fruits of *Epilobium densiflorum* (Lindl.) Hoch & P. H. Raven, Onagraceae.

Other items found and placed in gelatin capsules:
many fruits of *Anthemis cotula* L., mayweed, Asteraceae
1 fruit of *Centaurea melitensis* L., Maltese star thistle, Asteraceae
158 spikelets of *Gastridium phleoides* (Nees & Meyen) C.E. Hubbard, nit grass, Poaceae
(Nomenclature follows the treatment in Barkworth, M. E. et al. (eds.), 2007, Flora of North America, Vol. 24, Poaceae, part 1, Oxford Univ. Press.)
11 florets of *Polypogon monspeliensis* (L.) Desf., beard grass or rabbit-foot grass, Poaceae
1 nutlet of *Plagiobothrys* sp., popcornflower, Boraginaceae
1 seed of *Brassica nigra* (L.) W. D. J. Koch, black mustard, Brassicaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3465** | 7/23/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12078; coll. S. A. Barrett, 1907; Mendocino Co., CA; Round Valley; Wailaki; foodstuff, to'ka (buttercup? seed)

## Laboratory Results:

The specimen consists of mixture of achenes of *Ranunculus californicus* Benth., California buttercup, Ranunculaceae and fruits of *Plectritis congesta* (Lindl.) DC., shortspur seablush, Valerianaceae.

Other items found and placed in gelatin capsules:
58 fruits and accessory structures of *Carex* spp., sedge, Cyperaceae
46 florets of *Bromus hordeaceus* L., brome mou, lop grass, soft brome, or soft chess, Poaceae
45 seeds of *Cerastium glomeratum* Thuill., clammy chickweed or sticky mouse-ear chickweed, Caryophyllaceae
28 florets of *Vulpia myuros* (L.) C. C. Gmel., annual fescue, foxtail fescue, or rat-tail fescue, Poaceae
15 florets of *Vulpia bromoides* (L.) Gray, squirreltail fescue, Poaceae
5 seeds, fruits, and flower parts of *Trifolium microdon* Hook. & Arn., small cup clover, square-head clover, or thimble clover, Fabaceae
4 seeds, fruits, and flower parts of *Trifolium bifidum* A. Gray, notch-leaf clover or pinole clover, Fabaceae
4 seeds of *Trifolium variegatum* Nutt., whitetip clover, Fabaceae
3 fruits of *Sonchus asper* (L.) Hill, prickly sow thistle, Asteraceae
3 nutlets of *Amsinckia menziesii* (Lehm.) A. Nelson & J. F. Macbr., Boraginaceae
3 fruits of *Agoseris heterophylla* (Nutt.) Greene, annual agoseris, Asteraceae
2 spikelets groups *Hordeum brachyantherum* Nevski, meadow barley, Poaceae
1 fruit of *Limnanthes* spp., meadowfoam, Limnanthaceae
1 nutlet of *Salvia carduacea* Benth., thistle sage, Lamiaceae
1 nutlet of *Salvia columbariae* Benth., California chia, Lamiaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3466** | 7/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat # 1-10867; small, light brown seeds

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae

Other items found and placed in gelatin capsules:
7 seeds of *Calandrinia ciliata* (Ruiz & Pav.) DC., red maids, Portulacaceae.
3 seeds of *Gilia* sp., gilia, Polemoniaceae.
2 achenes of *Hemizonia* sp., tarweed, Asteraceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3467** | 7/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat # 1-10441; specimen, ethnobotanical, unspecified, light brown seeds

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae.

Other items found and placed in gelatin capsules:
17 seeds of unknown Brassicaceae.
1 seed of *Gilia* sp., gilia, Polemoniaceae.
1 seed of *Phacelia* sp., phacelia, Hydrophyllaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3468** | 7/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat # 1-10472; Co.. S. A. Barrett, 1906; N. Central CA, Mariposa Co., Mariposa, Miwok; seeds glossy light brown in appearance; used as food; these seeds were obtained in the vicinity of Picayune, in Madera Co.; for comparative purposes, cf. 1-10388, 1-10347, & 1-10441

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae.

Other items found and placed in gelatin capsules:
60 seeds of *Gilia* sp., gilia, Polemoniaceae.
58 seeds of unknown Brassicaceae.
3 nutlets of *Plagiobothrys* sp., fiddleneck, Boraginaceae.
2 nutlets of *Cryptantha* sp., cryptantha, Boraginaceae.
2 seeds of *Clarkia* sp., clarkia, Onagraceae.
1 seed of *Silene antirrhina* L., sleepy catchfly, Caryophyllaceae.
1 floret of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3469** | 7/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10810; very small, light brown seeds

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae.

Other items found and placed in gelatin capsules:
5 achenes of *Hemizonia* sp., possibly *Hemizonia kelloggii* E. Greene (Source: Jepson), Asteraceae.
3 florets of *Muhlenbergia microsperma* (DC.) Kunth, littleseed muhly, Poaceae.
2 seeds of *Phacelia* sp., phacelia, Hydrophyllaceae.
1 nutlet of *Plagiobothrys* sp., popcornflower, Boraginaceae.
1 nutlet of *Cryptantha* sp., cryptantha, Boraginaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3470** | 7/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10388; small light brown seeds

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae.

Other items found and placed in gelatin capsules:
22 achenes of *Madia elegans* Lind., common madia, Asteraceae.
2 nutlets of *Plagiobothrys* sp., popcornflower, Boraginaceae.
1 seed of *Phacelia* sp., catchfly, Caryophyllaceae.
1 seed of *Trifolium obtusiflorum* Hook. F., clammy clover, Fabaceae.
1 seed of *Gilia* sp., gilia, Polemoniaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3471** | 7/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-26971; 'chia' food seed

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae.

Other items found and placed in gelatin capsules:
5 seeds of *Oenothera* sp., evening primrose, Onagraceae.
2 seeds of *Epilobium brachycarpum* C. Presl., tall annual willowherb, Onagraceae.
2 seeds of *Descurainia* sp., tansy mustard, Brassicaceae.
1 seed of *Phacelia* sp., phacelia, Hydrophyllaceae.
1 seed of *Collinsia* sp., possibly *Collinsia parviflora* Douglas ex Lindl., maiden blue eyed Mary, Plantaginaceae (also placed in Scrophulariaceae and Veronicaceae).

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3472** | 7/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12787; Coll. S. A. Barrett, 1907; Klamath Reservation, Oregon, U. S.; seeds; lolas; food

## Laboratory Results:

The specimen is a mixture of fruits with accessory structures of *Polygonum* sp., dock, Polygonaceae, and seeds of *Mentzelia* spp., blazingstar, Loasaceae.

Other items found and placed in gelatin capsules:
32 caryopses of *Secale cereale* L., rye, Poaceae.
29 achenes of *Madia sativa* Molina., coast tarweed, Asteraceae.
17 seeds of *Chenopodium* sp., goosefoot, Chenopodiaceae.
17 nutlets of *Amsinckia* spp., fiddleneck, Boraginaceae.
6 florets of *Bromus carinatus* Hook & Arn., California brome, Poaceae.
3 seeds of *Collomia grandiflora* Douglas ex Lindl., grand collomia, Polemoniaceae.
2 florets of *Bromus commutatus* Schrad., hairy chess, Poaceae.
2 seeds of *Linum lewisii* Pursh., Lewis' flax, Linaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3473** | 7/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-211559; seed sample, Salvia sp.?

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae.

Other items found and placed in gelatin capsules:
40 seeds of *Mentzelia* spp., blazingstar, Loasaceae.
6 florets of *Bromus rubens* L., red brome, foxtail chess, Poaceae.
5 nutlets of *Plagiobothrys* sp., popcornflower, Boraginaceae.
1 seed of *Eschscholzia* sp., possibly *Eschscholzia californica* Cham., California poppy, Papaveraceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3474** | 7/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-21685; bottle of edible seed, unparched; Salvia columbariae

## Laboratory Results:

The main component of the specimen consists of nutlets of *Salvia columbariae* Benth., chia, Lamiaceae.

Other items found and placed in gelatin capsules:
33 seeds of *Gilia* sp., gilia, Polemoniaceae.
4 seeds of unknown Brassicaceae.
1 seed of *Lotus scoparius* (Nutt.) Ottley, California broom or common deerweed, Fabaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3475** | 7/30/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10196; Coll. S. A. Barrett, 1906; Tuolumne Co., CA, Chicken ranch (1 1/2 mi. W of Jamestown); ethnobotanical, stems & seeds, one bundle

## Laboratory Results:

The specimen consists of fruits of *Clarkia* sp., possibly *Clarkia purpurea* (Curtis) A. Nelson & J. F. Macbr., Onagraceae.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3476** | 7/30/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12709; Coll. S. A. Barrett, 1907; Klamath Reservation, Oregon; seed (nutak) used as food

## Laboratory Results:

The specimen is a mixture of fruits of *Rumex occidentalis* S. Watson sp., western dock, Polygonaceae, and florets of *Torreyochloa pallida* (Torr.) G. L. Church var. *pauciflora* (J. Presl) J. I. Davis, weak mannagrass, Poaceae.

Other items found and placed in gelatin capsules:
2 caryopses of *Secale cereale* L., rye, Poaceae
2 spikelets of *Phalaris arundinacea* L., reed Canary grass, Poaceae
2 achenes of *Ranunculus* sp., buttercup, Ranunculaceae
1 seed of *Nuphar polysepala* Engelm., Rocky Mountain pond-lily, Nymphaeaceae
1 seed of *Rorippa* sp., Brassicaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3477** | 7/30/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-11911B; Coll. S. A. Barrett, July 1907; Round Valley, Yuki; unthreshed seeds

## Laboratory Results:

The specimen is a mixture of the following species:
*Ranunculus californicus* Benth., California buttercup, Ranunculaceae (achenes)
*Layia chrysanthemoides* (DC.) A. Gray, smooth tidytips, Asteraceae (ray and disk achenes in separate containers)
*Amsinckia* sp., possibly *Amsinckia menziesii* (Lehm.) A. Nelson & J. F. Macbr., Menzies' fiddleneck, Boraginaceae (nutlets)
*Plectritis congesta* (Lindl.) DC., shortspur seablush, Valerianaceae (fruit)

Other items found and placed in gelatin capsules:
59 florets of *Vulpia myuros* (L.) C. C. Gmel., foxtail fescue or rat-tail fescue, Poaceae
14 florets of *Bromus hordeaceus* L., brome mou, lop grass, soft brome, or soft chess, Poaceae
8 seeds of *Trifolium fucatum* Lindl., puff clover or sour clover , Fabaceae
2 fruits of *Achyrachaena mollis* Schauer, blow wives, Asteraceae
2 seeds of *Capsella bursa-pastoris* (L.) Medik., shepherd's-purse, Brassicaceae
2 seeds of *Lepidium nitidum* Nutt., shining pepperweed, Brassicaceae
1 seed of *Trifolium albopurpureum* Torr. & A. Gray, common Indian clover or rancheria clover, Fabaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3478** | 7/30/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10164; Coll. S. A. Barrett, 1906; Tuolumne Co., CA, Chicken Ranch (1.5 mi W. of Jamestown); Miwok; ethnobotanical, seeds; Foodstuff, specimen show the material as it is harvested before separating the seed and chaff

## Laboratory Results:

The main component of the specimen consists of fruits of *Achyrachaena mollis* Schauer, blow wives, Asteraceae.

Other items found and placed in gelatin capsules:
128 florets of *Briza minor* L., lesser quaking grass or little quaking grass , Poaceae
8 florets of *Poa annua* L., annual bluegrass, Poaceae
5 florets of *Bromus hordeaceus* L., brome mou, lop grass, soft brome, or soft chess, Poaceae
2 florets of *Vulpia myuros* (L.) C. C. Gmel., foxtail fescue or rat-tail fescue, Poaceae
1 floret of *Avena barbata* Pott ex Link, slender oat, Poaceae
1 fruit of *Madia sativa* Molina, coast tarweed, Asteraceae
1 seed of *Lupinus* sp., lupine, Fabaceae
1 fruit of *Microseris douglasii* (DC.) Sch. Bip., Douglas' silverpuffs, Asteraceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3479** | 7/30/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-11969; Coll. S. A. Barrett, July 1907; Round Valley; mixed seeds

## Laboratory Results:

The specimen is a mixture of the following species:
*Ranunculus californicus* Benth., California buttercup, Ranunculaceae (achenes)
*Layia chrysanthemoides* (DC.) A. Gray, smooth tidytips, Asteraceae (ray and disk achenes in separate containers)
*Amsinckia* sp., possibly *Amsinckia menziesii* (Lehm.) A. Nelson & J. F. Macbr., Menzies' fiddleneck (nutlets), Boraginaceae
*Plectritis congesta* (Lindl.) DC., shortspur seablush, Valerianaceae (fruit)

Other items found and placed in gelatin capsules:
72 florets of *Vulpia myuros* (L.) C. C. Gmel., foxtail fescue or rat-tail fescue, Poaceae
18 florets of *Bromus hordeaceus* L., brome mou, lop grass, soft brome, or soft chess, Poaceae
4 florets of *Vulpia bromoides* (L.) Gray, squirreltail fescue, Poaceae
3 fruits of *Achyrachaena mollis* Schauer, blow wives, Asteraceae
1 seed of *Capsella bursa-pastoris* (L.) Medik., shepherd's-purse, Brassicaceae
1 floret of *Avena sativa* L., oat, Poaceae
1 seed of *Trifolium* sp., clover, Fabaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3481** | 08-10-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10309; Coll. S. A. Barrett 1906; ethnobotanical; seeds, tobacco (saved for planting); Tuolumne Co., CA, Big Creek, 2 mi NE of Groveland; Miwok

## Laboratory Results:

The specimen consists of seeds of *Nicotiana quadrivalvis* Pursh, Indian tobacco, Solanaceae and assorted plant fragments.

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3482** | 08-10-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-211563; *Mentzelia albicaulis* seed

## Laboratory Results:

The main component of the specimen consists of seeds of *Mentzelia* sp., possibly *M. albicaulis* (Douglas) Douglas ex Torr. & A. Gray, white-stem blazing-star, Loasaceae.

Other items found and placed in gelatin capsules:

580 seeds of *Descurainia* sp., possibly *D. sophia* (L.) Webb ex Prantl, flixweed, Brassicaceae
2 seeds of *Sisymbrium* sp., Brassicaceae

**Identification made by:** D. J. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3483** | 08/10/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
1-2909

## Laboratory Results:

The specimen consists of seeds of *Hoita macrostachya* (DC.) Rydb., leatherroot, Fabaceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3491** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10271; Coll. S. A. Barrett, 1906; Miwok, Bald Rock, Tuolumne Co.; 3 m. N. of Tuolumne. Flat curved black seeds used as food.

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsule:

936 seeds of *Clarkia* spp., clarkia, Onagraceae
73 fruits of *Rumex acetosella* L., common sheep sorrel, Polygonaceae
35 florets of *Bromus hordeaceus* L., soft brome, Poaceae
29 achenes of *Centaurea melitensis* L., Maltese star-thistle, Asteraceae
23 mericarps of *Daucus carota* L., Queen Anne's lace, Apiaceae
9 achenes of *Eriogonum* spp., buckwheat, Polygonaceae
8 seeds of *Trifolium microcephalum* Pursh, smallhead clover, Fabaceae
5 achenes of *Grindelia camporum* Greene, Great Valley gumweed, Asteraceae
4 seeds of *Plantago lanceolata* L., narrowleaf plantain, Plantaginaceae
4 achenes of *Agoseris* spp., agoseris, Asteraceae
3 florets of *Avena* sp., oat, Poaceae
3 seeds *Trifolium ciliolatum* Benth., foothill clover, Fabaceae
2 florets of *Vulpia myuros* (L.) C.C. Gmel., rat-tail fescue, Poaceae
2 nutlets of *Amsinckia* sp., fiddleneck, Boraginaceae
1 floret of *Bromus rubens* L., red brome, Poaceae
1 seed of *Brodiaea* sp., brodiaea, Themidaceae
1 nutlet of *Cryptantha* sp., cryptantha, Boraginaceae
1 floret of *Digitaria* sp., crabgrass, Poaceae
1 seed of *Cuscuta* sp., dodder, Convolvulaceae
1 seed of *Trifolium* sp., clover, Fabaceae
16 achenes of unknown Asteraceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3492** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10272; Coll. S. A. Barrett, 1906; Miwok, Bald Rock, Tuolumne Co.; 3 m. N. of Tuolumne. Flat curved brown seeds used as food. Madia sativa

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsule:
148 florets of *Vulpia bromoides* (L.) Gray, brome fescue, Poaceae
27 nutlets of *Cryptantha* spp., cryptantha, Boraginaceae
16 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
12 florets of *Bromus hordeaceus* L., soft brome, Poaceae
12 achenes of *Centaurea melitensis* L., Maltese star-thistle, Asteraceae
6 achenes of *Drymocallis glandulosa* (Lindl.) Rydb., glandular cinquefoil, Rosaceae
3 mericarps of *Daucus carota* L., Queen Anne's lace, Apiaceae
3 achenes of *Ranunculus californicus* Benth., California buttercup, Ranunculaceae
1 nutlet of *Amsinckia* sp., fiddleneck, Boraginaceae
1 achene of *Agoseris* spp., agoseris, Asteraceae
1 fruit of *Erodium* sp., stork's bill, Geraniaceae
1 floret of *Gastridium phleoides* (Nees & Meyen) C. E. Hubb., nit grass, Poaceae
1 seed of *Trifolium ciliolatum* Benth., foothill clover, Fabaceae
1 seed of *Trifolium microdon* Hook. & Arn., thimble clover, Fabaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3493** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10292; Coll. S. A. Barrett, 1906; Miwok, Soulsbyville, Tuolumne County. Flat curved brown seeds used as food. Madia sativa

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsule:
51 florets of Bromus hordeaceus L., soft brome, Poaceae
22 achenes of *Drymocallis glandulosa* (Lindl.) Rydb., glandular cinquefoil, Rosaceae
15 seeds of *Trifolium ciliolatum Benth.*, foothill clover, Fabaceae
15 florets of *Vulpia bromoides* (L.) Gray, brome fescue, Poaceae
12 mericarps of *Daucus carota* L., Queen Anne's lace, Apiaceae
11 seeds of *Trifolium obtusiflorum* Hook. f., clammy clover, Fabaceae
10 florets of *Vulpia myuros* (L.) C.C. Gmel., rat-tail fescue, Poaceae
9 seeds of *Castilleja densiflora* (Benth.) T.I. Chuang & Heckard, denseflower Indian paintbrush, Scrophulariaceae
4 seeds of *Trifolium microcephalum* Pursh, smallhead clover, Fabaceae
4 achenes of *Ranunculus californicus* Benth., California buttercup, Ranunculaceae
4 nutlets of *Cryptantha* spp., cryptantha, Boraginaceae
4 seeds of *Epilobium densiflorum* (Lindl.) Hoch & P.H. Raven, denseflower willowherb, Onagraceae
3 fruits of *Rumex acetosella* L., common sheep sorrel, Polygonaceae
2 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
2 seeds of *Clarkia* sp., clarkia, Onagraceae
2 seeds of *Silene gallica* L., common catchfly, Caryophyllaceae
2 (one floret, one caryopsis) *Melica californica* Scribn., California melicgrass, Poaceae
2 nutlets of *Amsinckia* sp., fiddleneck, Boraginaceae
2 achenes of *Madia exigua* (Sm.) A. Gray, small tarweed, Asteraceae
2 florets of *Deschampsia* spp., hairgrass, Poaceae
1 mericarp of *Sanicula* spp., sanicle, Apiaceae
1 achene of *Sonchus oleraceus* L., common sowthistle, Asteraceae
1 floret of *Bromus tectorum* L., cheatgrass, Poaceae
1 floret of *Bromus diandrus* Roth, ripgut brome, Poaceae
1 seed of *Claytonia* sp., springbeauty, Portulacaceae
1 seed of *Plantago* sp., plantain, Plantaginaceae
1 seed of *Descurainia* sp., tansymustard, Brassicaceae
1 achene of *Agoseris* sp., agoseris, Asteraceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3494** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10348; Coll. S. A. Barrett, 1906; Miwok, Colorado, 5 m. NE. of Mariposa, Mariposa county. Flat brown seeds used as food. Madia sativa

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. elegans* is highly variable and intermediates blur distinction among extremes.

Other items found and placed in gelatin capsules:
37 achenes of *Ranunculus californicus* Benth., California buttercup, Ranunculaceae
16 seeds of *Trifolium obtusiflorum* Hook. f., clammy clover, Fabaceae
13 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
4 achenes of *Rigiopappus leptocladus* A. Gray, wireweed, Asteraceae
6 seeds of *Gilia* spp., gilia, Polemoniaceae
3 achenes of *Agoseris* sp., agoseris, Asteraceae
2 florets of *Poa secunda* J. Presl, Sandberg bluegrass, Poaceae
2 seeds of *Collinsia heterophylla* G. Buist ex Graham, Chinese-houses, Plantaginaceae
1 seed of *Phlox* sp., phlox, Polemoniaceae
1 nutlet of *Cryptantha* spp., cryptantha, Boraginaceae
1 floret of *Vulpia myuros* (L.) C.C. Gmel., rat-tail fescue, Poaceae
1 seed of *Trifolium ciliolatum* Benth., foothill clover, Fabaceae
1 caryopsis of *Melica* sp., melicgrass, Poaceae
1 unknown

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3495** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12013; Coll. S. A. Barrett, July 1907; Round Valley, Yuki. Black seeds used as pinole.

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsule:
44 florets of *Phleum pratense* L., timothy, Poaceae
3 achenes of *Anthemis cotula* L., stinking chamomile,
1 fruit of *Rumex* sp., dock, Polygonaceae
1 floret of *Bromus* sp., brome, Poaceae
1 seed of unknown Fabaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3496** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12029; Coll. S. A. Barrett, July 1907; Round Valley, Yuki. Black seeds; used as food.

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsule:
146 florets of *Phleum pratense* L., timothy, Poaceae
30 achenes of *Drymocallis glandulosa* (Lindl.) Rydb., glandular cinquefoil, Rosaceae
15 achenes of *Anthemis cotula* L., stinking chamomile, Asteraceae
15 seeds of *Epilobium densiflorum* (Lindl.) Hoch & P.H. Raven, denseflower willowherb, Onagraceae
6 seeds of *Trifolium obtusiflorum* Hook. f., clammy clover, Fabaceae
4 nutlets of *Verbena lasiostachys* Link, western vervain, Verbenaceae
3 achenes of *Lactuca* sp. L., wild lettuce, Asteraceae
2 florets of *Poa annua* L., annual bluegrass, Poaceae
1 fruit of *Chenopodium* sp., goosefoot Chenopodaceae
1 seed of *Lotus unifoliolatus* (Hook.) Benth., deervetch, Fabaceae
1 seed of *Camelina microcarpa* Andrz. ex DC., littlepod false flax, Brassicaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3497** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12613; Coll. S. A. Barrett, 1907. Klamath Reservation, Oregon. Small black seeds (Koikwa) parched and ground in mortar for food.

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia glomerata Hook.,* mountain tarweed*,* Asteraceae*.*

Other items found and placed in gelatin capsule:
1 seed of *Nuphar polysepala* Engelm., Rocky Mountain pond-lily, Nymphaeaceae
1 fruit of *Polygonum* sp., knotweed, Polygonaceae
1 seed of *Lotus* sp., lotus, Fabaceae
1 floret of *Elymus* sp., wildrye, Poaceae
1 achene of *Drymocallis glandulosa* (Lindl.) Rydb., glandular cinquefoil, Rosaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3498** | 7/7/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-21678

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. elegans* is highly variable and intermediates blur distinction among extremes.

Other items found and placed in gelatin capsules:
13 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
10 seeds of *Dichelostemma capitatum* (Benth.) Alph.Wood, bluedicks, Themidaceae
9 seeds of *Triteleia ixioides* (W. T. Aiton) Greene, yellow-brodiaea, Themidaceae
8 seeds of *Trifolium obtusiflorum* Hook. f., clammy clover, Fabaceae
8 seeds of *Collinsia heterophylla* G. Buist ex Graham, Chinese-houses, Plantaginaceae
6 nutlets of *Plagiobothrys* spp., popcornflower, Boraginaceae
5 mericarps of *Sanicula* spp., sanicle, Apiaceae
3 seeds of *Gilia* spp., gilia, Polemoniaceae
2 nutlets of *Amsinckia* sp., fiddleneck, Boraginaceae
2 seeds of unknown
1 nutlet of *Cryptantha* spp., cryptantha, Boraginaceae
1 floret of *Poa secunda* J. Presl, Sandberg bluegrass, Poaceae
1 floret of *Melica imperfecta* Trin., smallflower melicgrass, Poaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3499** | 06/29/2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-14113; Klamath Reservation, Oregon; ethnobotanical; seeds, small, slender, slightly curved; used as food

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia glomerata* Hook., mountain tarweed, Asteraceae.

Other items found and placed in gelatin capsules:
10 *Sanguisorba* cf. *annua* (Nutt. ex Hook.) Nutt. ex Torr. & A. Gray, prairie burnet, Rosaceae
4 florets of *Elymus* spp., Poaceae
3 fruits of *Polygonum* sp., knotweed, Polygonaceae
2 *Sidalcea malviflora* (DC.) A. Gray ex Benth., dwarf checkerbloom, Malvaceae
2 seeds of *Collomia* sp., Polemoniaceae
1 floret of *Poa secunda* J. Presl, Sandberg bluegrass, Poaceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3500** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-7406

## Laboratory Results:

The specimen consists of fruits of two *Polygonum* spp., knotweed, Polygonaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3501** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12030

## Laboratory Results:

The specimen consists of finely ground plant materials. Included are broken seed coats of *Madia* sp., tarweed, Asteraceae, and finely broken caryopses of unknown cereal grains, Poaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3502** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-11913; Coll. S. A. Barrett; July 1907; Round Valley, Yuki; (Pinole) meal made from barley

## Laboratory Results:

The specimen consists of finely ground plant materials, heavily infested with beetles. Included are broken seed coats of *Madia* sp., tarweed, Asteraceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3504** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10178; Coll. S. A. Barrett, 1906; Miwok, Chicken Ranch, 1.5 m. W. of Jamestown, Tuolumne Co., small angular light brown seeds, used as food

## Laboratory Results:

The main component of the specimen consists of seeds of *Clarkia purpurea* (Curtis) A. Nelson & J.F. Macbr., winecup clarkia, Onagraceae.

Other items found and placed in gelatin capsules:
2 seeds of *Silene gallica* L., French catchfly, Caryophyllaceae
1 seed of *Calandrinia ciliata* (Ruiz & Pav.) DC., red maids, Portulacaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3505** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10249; Specimen, ethnobotanical; seeds, (*Mentzelia* sp.), small, angular, brown

## Laboratory Results:

The main component of the specimen consists of mixture of seeds of *Clarkia purpurea* (Curtis) A. Nelson & J.F. Macbr., winecup clarkia, Onagraceae and seeds of *Epilobium densiflorum* (Lindl.) Hoch & P.H. Raven, denseflower willowherb, Onagraceae.

Other items found and placed in gelatin capsules:
316 seeds of *Monardella* sp., monardella, Lamiaceae.
7 florets of *Agrostis* sp., bentgrass, Poaceae
7 fruits of *Rumex acetosella* L., sheep sorrel, Polygonaceae
5 achenes of *Hemizonia* sp., tarweed, Asteraceae
3 seeds of *Brodiaea* sp., brodiaea, Themidaceae
4 seeds of *Leptosiphon* sp., linanthus, Polemoniaceae
1 seed of an unknown Polemoniaceae, possibly *Leptosiphon* sp., linanthus, Polemoniaceae
1 floret of *Bromus tectorum* L., downy brome or cheatgrass, Poaceae
1 floret of *Deschampsia danthonioides* (Trin.) Munro, annual hairgrass, Poaceae
1 fruit and accessory structures of *Carex* sp., sedge, Cyperaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3506** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10310; Coll. S. A. Barrett, 1906; Miwok, Big Creek, 2 m. NE of Groveland, Tuolumne Co.; small angular brown seeds used as food, *Mentzelia* sp.

## Laboratory Results:

The main component of the specimen consists of seeds and fruits of *Clarkia purpurea* (Curtis) A. Nelson & J.F. Macbr., winecup clarkia, Onagraceae.

Other items found and placed in gelatin capsules:
55 seeds possibly of *Clarkia biloba* (Durand) A. Nelson & J.F. Macbr., twolobe clarkia, Onagraceae
36 florets of *Bromus hordeaceus* L., soft chess, Poaceae
36 seeds of *Cuscuta* spp., dodder, Cuscutaceae
30 seeds of *Brodiaea* sp., brodiaea, Themidaceae
25 seeds of *Leptosiphon*, possibly *Leptosiphon ciliatus* (Benth.) Jeps., whiskerbrush, Polemoniaceae
20 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
10 achenes of *Grindelia* sp., gumweed, Asteraceae
4 seeds of *Epilobium densiflorum* (Lindl.) Hoch & P.H. Raven, denseflower willowherb, Onagraceae
4 mericarps of *Daucus pusillus* Michx., American wild carrot, Apiaceae
2 mericarps of *Perideridia* sp., yampah, Apiaceae
2 achenes of *Madia sativa* Molina, coast tarweed, Asteraceae
2 florets of *Gastridium phleoides* (Nees & Meyen) C.E. Hubbard, nit grass, Poaceae
1 achene of *Achillea* sp., yarrow, Asteraceae
1 seed of *Monardella* sp., monardella, Lamiaceae
1 seed of *Eriogonum* sp. Michx., buckwheat, Polygonaceae
1 floret of *Poa secunda* J. Presl, Sandberg bluegrass, Poaceae
1 floret of *Elymus*, possibly *Elymus glaucus* Buckley, blue wildrye, Poaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3507** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10462; very small angular seeds used as food

## Laboratory Results:

The main component of the specimen consists of seeds of *Clarkia purpurea* (Curtis) A. Nelson & J.F. Macbr., winecup clarkia, Onagraceae.

Other items found and placed in gelatin capsules:

715 seeds of *Monardella* sp., monardella, Lamiaceae.
80 seeds of *Brodiaea* sp., brodiaea, Themidaceae
36 seeds of *Mentzelia* sp., blazingstar, Loasaceae
18 seeds possibly of *Clarkia biloba* (Durand) Nelson & J.F. Macbr., twolobe clarkia, Onagraceae
15 seeds of *Epilobium densiflorum* (Lindl.) Hoch & P.H. Raven, denseflower willowherb, Onagraceae
15 achenes of *Anthemis cotula* L., mayweed or dog fennel, Asteraceae
7 seeds of *Silene antirrhina* L., sleepy catchfly, Caryophyllaceae
4 nutlets of *Cryptantha* sp., cryptantha, Boraginaceae
4 fruits of *Rumex acetosella* L., sheep sorrel, Polygonaceae
2 seeds possibly of *Clarkia unguiculata* Lindl., elegant clarkia, Onagraceae
2 seeds of *Collinsia heterophylla* G. Buist ex Graham, Chinese houses, Plantaginaceae (also placed in Scrophulariaceae)
2 seeds of *Leptosiphon* sp., linanthus, Polemoniaceae
1 seed of *Amaranthus* sp., pigweed, Amaranthaceae
1 achene of *Madia elegans* Lind., common madia, Asteraceae
1 achene of *Hemizonia* sp., tarweed, Asteraceae
1 seed of *Lotus unifoliatus* (Hook.) Benth., deervetch, Fabaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3508** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-10438; specimen, ethnobotanical, unspecified, very small, angular

## Laboratory Results:

The main component of the specimen consists of seeds of *Clarkia purpurea* (Curtis) A. Nelson & J.F. Macbr., winecup clarkia, Onagraceae.

Other items found and placed in gelatin capsules:
675 seeds possibly of *Clarkia rhomboidea* Dougl. ex Hook.,diamond clarkia, Onagraceae
441 achenes of *Anthemis cotula* L., mayweed or dog fennel, Asteraceae
125 seeds possibly of *Clarkia biloba* (Durand) Nelson & J.F. Macbr., twolobe clarkia, Onagraceae
58 seeds possibly of *Clarkia unguiculata* Lindl., elegant clarkia, Onagraceae
21 seeds of *Epilobium densiflorum* (Lindl.) Hoch & P.H. Raven, denseflower willowherb, Onagraceae
2 seeds of *Gilia* sp., gilia, Polemoniaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3509** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-12794

## Laboratory Results:

The main component of the specimen consists of seeds of *Mentzelia* sp., Loasaceae.

Other items found and placed in gelatin capsules:
123 achenes of *Polygonum* sp., knotweed, Polygonaceae
45 seeds of *Camelina microcarpa* Andrz. ex DC., small-seed false flax, Brassicaceae
28 seeds and fruits of *Chenopodium* sp., Chenopodiaceae
18 achenes of *Madia sativa* Molina, coast tarweed, Asteraceae
16 nutlets of *Amsinckia* sp., Boraginaceae
7 seeds of *Gayophytum* sp., Onagraceae
6 seeds possibly of *Descurainia* sp., tansymustard, Brassicaceae
6 caryopses of *Secale cereale* L., cereal rye, Poaceae
4 achenes of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae
4 florets of *Festuca arundinacea* Schreb., tall fescue. Poaceae
4 seeds of *Epilobium brachycarpum* C. Presl, panicle willow-herb, Onagraceae
2 seeds of *Phacelia* sp., Hydrophyllaceae
1 seed of *Collomia* sp., Polemoniaceae
1 floret of *Torreyochloa pallida* (Torr.) G. L. Church var. *pauciflora* (J. Presl) J. I. Davis, weak manna grass, Poaceae

**Identification made by:** D. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3510** | 10-6-2009 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. # 1-14110; May 1098; U. S., Oregon, Klamath Reservation; specimen, ethnobotanical; seeds, angular, brown; used as food

## Laboratory Results:

The main component of the specimen consists of seeds of *Mentzelia dispersa* S. Watson, entire-leaf mentzelia, nada stickleaf, or Nevada blazing-star, Loasaceae.

Other items found and placed in gelatin capsules:
315 seeds of *Mentzelia* sp., Loasaceae; similar to *M. albicaulis,* but seeds are smaller and papillae are more abundant
64 seeds of *Epilobium brachycarpum* C. Presl, panicle willow-herb, Onagraceae
47 seeds and fruits of *Chenopodium* sp., Chenopodiaceae
39 seeds of *Gayophytum* sp., Onagraceae
11 achenes of *Polygonum* sp., knotweed, Polygonaceae
1 achene of *Madia sativa* Molina, coast tarweed, Asteraceae
1 nutlet of *Cryptantha* sp., Boragniaceae

**Identification made by:** D. Meyer

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Deborah J. Meyer, Senior Seed Botanist-Supervisor
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3741** | 4-27-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-2367 - Pinole seeds; California, Mendocino, Ukiah; coll. Dr. Pliny Earle Goddard, 1901; Pomo culture

## Laboratory Results:

The main component of the specimen consists of fruits of *Hemizonia congesta* DC., hayfield tarweed, Asteraceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3742** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-2897 - Specimen, ethnobotanical; seeds; two bottles; California, Mendocine; Yokaia Rancheria, coll. Dr. Samuel A. Barrett, 1902; Culture: Pomo

## Laboratory Results:

The main component of the specimen consists of seeds of *Salvia columbariae* Benth., chia. Lamiaceae (placed in a gelatin capsule).

**Identification made by:** D. Joley

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3743** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-2898 (1/2) - Buttercup; California; Mendocino; Yokaia Rancheria; Culture: Pomo

## Laboratory Results:

The main component of the specimen consists of seeds of *Ranunculus californicus* Benth., California buttercup, Ranunculaceae.

Other item found and placed in a gelatin capsule:
1 floret of *Poa annua* L., annual bluegrass, Poaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3744** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-2898 (2/2) - Buttercup; California; Mendocino; Yokaia Rancheria; Culture: Pomo

## Laboratory Results:

The main component of the specimen consists of seeds of *Ranunculus californicus* Benth., California buttercup, Ranunculaceae.

Other items found and placed in a gelatin capsule:
1 floret and additional awn of *Avena fatua* L., wild oat, Poaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3745** | 4-27-2010 |

Applicant:

Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:

Cat. #1-2905 (1 of 2) - Seeds used for food; California, Mendocino; Yokaia Rancheria; coll. Dr. Samuel A. Barrett; August 1902; Pomo culture

## Laboratory Results:

The main component of the specimen consists of achenes of Asteraceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3746** | 4-27-2010 |

Applicant:

Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:

Cat. #1-2905 (2 of 2) - Seeds used for food; California, Mendocino; Yokaia Rancheria; coll. Dr. Samuel A. Barrett; August 1902; Pomo culture

## Laboratory Results:

The main component of the specimen consists of achenes of Asteraceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3747** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-4026 - Small seeds; California; Madera; coll. Alfred L. Kroeber; Culture: Chukchansi; 8 Jan 1904 - 17 Jan 1904

## Laboratory Results:

The main component of the specimen consists of a mixture of seeds of *Epilobium densiflorum* (Lindl.) Hoch & P.H. Raven, denseflower willowherb, Onagraceae (placed in a small plastic bag), and seeds of *Clarkia purpurea* (Curtis) A. Nelson & J. F. Macbr., winecup clarkia, Onagraceae.

Other items found and placed in gelatin capsules:
4 seeds of *Monardella* sp., monardella, Lamiaceae
1 seed of *Brodiaea* sp., brodiaea, Themidaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3748** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-4032 (1 of 2) - Specimen, ethnobotanical; seeds, unspecified, foodstuff; California; Madera; Coll. Alfred L. Kroeber; Culture: Chukchansi; 8 Jan. 1904 - 17 Jan. 1904

## Laboratory Results:

The main component of the specimen consists of nutlets of *Plagiobothrys*, possibly *Plagiobothrys nothofulvus* (A. Gray) A. Gray, rusty popcorn-flower, Boraginaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3749** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-4032 (2 of 2) - Specimen, ethnobotanical; seeds, unspecified, foodstuff; California; Madera; Coll. Alfred L. Kroeber; Culture: Chukchansi; 8 Jan. 1904 - 17 Jan. 1904

## Laboratory Results:

The main component of the specimen consists of nutlets of *Plagiobothrys*, possibly *Plagiobothrys nothofulvus* (A. Gray) A. Gray, rusty popcorn-flower, Boraginaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3750** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-4033 - Specimen, ethnobotanical; seeds, unspecified, plant “like 1-4023, from plains”;California; Madera; coll. Alfred L. Kroeber; Culture: Chukchansi; 8 Jan. 1904 - 17 Jan. 1904

## Laboratory Results:

The main component of the specimen consists of seeds of *Lepidium nitidum* Nutt., shining pepperweed, Brassicaceae.

Other items found and placed in gelatin capsules:
1 nutlet of *Amsinckia* sp., fiddleneck, Boraginaceae.
1 nutlet of *Plagiobothrys* [possibly *Plagiobothrys nothofulvus* (A. Gray) A. Gray, rusty popcorn-flower], Boraginaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant’s information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3751** | 4-27-2010 |

Applicant:

Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:

Cat. #1-4034 - Wild onion seeds; California, Madera; coll. Alfred L. Kroeber, 8 January 1904 - 17 January 1904; Chukchansi culture

## Laboratory Results:

The main component of the specimen consists of seeds of *Allium* sp., wild onion, Amaryllidaceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3752** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-4043 - Seeds, Small; California; Madera; coll. Alfred L. Kroeber; Culture: Chukchansi; 8 Jan. 1904 - 17 Jan. 1904

## Laboratory Results:

The main component of the specimen consists of seeds of *Clarkia purpurea* (Curtis) A. Nelson & J. F. Macbr., winecup clarkia, Onagraceae.

Other items found and placed in gelatin capsules:
1 seed of *Brodiaea* sp., brodiaea, Themidaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3753** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-4054 - Seeds (xelic) used for food; California; Madera; coll. Alfred L. Kroeber; Culture: Chukchansi; 8 Jan. 1904 - 17 Jan. 1904

## Laboratory Results:

The main component of the specimen consists of seeds of *Salvia carduacea* Benth., thistle sage, Lamiaceae.

Other items found and placed in gelatin capsules:
7 achenes of *Hemizonia* sp., tarweed, Asteraceae
3 nutlets of *Plagiobothrys* sp., popcorn flower, Boraginaceae
2 achenes of *Centaurea melitensis* L., Maltese starthistle, Asteraceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3754** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-7405 (1/2) - Food sample; seeds; California; col. R. B. Dixon; Culture: Maidu

## Laboratory Results:

The main component of the specimen consists of florets of *Deschampsia elongata* (Hook.) Munro, slender hair grass, Poaceae.

**Identification made by:** D. Joley

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3755** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-7405 (2/2) - Food sample; seeds; California; col. R. B. Dixon; Culture: Maidu

## Laboratory Results:

The main component of the specimen consists of florets of *Deschampsia elongata (*Hook.) Munro, slender hair grass, Poaceae.

Other items found and placed in gelatin capsules:
2 seeds of *Descurainia* sp., tansy mustard, Brassicaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3756** | 4-27-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-7413 - Food sample; seeds, unspecified; California; coll. R. B. Dixon; Maidu culture

## Laboratory Results:

The main component of the specimen consists of seeds of *Descurainia* sp., tansy mustard, Brassicaceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3757** | 4-27-2010 |

Applicant:

Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:

Cat. #1-7419 - *Wyethia angustifolia*; California; coll. R. B. Dixon; Maidu culture

## Laboratory Results:

The main component of the specimen consists of fruits of *Wyethia* sp., mule-ears, Asteraceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3758** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-7422 - Food sample; seeds, unspecified; California; coll. R. B. Dixon; Culture: Maidu

## Laboratory Results:

The main component of the specimen consists of seeds of *Ranunculus californicus*, Benth., California buttercup, Ranunculaceae.

Other items found and placed in gelatin capsules:
11 florets of *Deschampsia danthonioides* (Trin.) Munro, annual hair grass, Poaceae
4 florets of *Deschampsia cespitosa* (L.) Beauv., tufted hair grass, Poaceae
1 seed of *Collinsia parviflora* Douglas ex Lindl., maiden blue-eyed Mary, Plantaginaceae (also placed in Scrophulariaceae and Veronicaceae).

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3759** | 4-27-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-7424 - *Madia* sp.; california; coll. R. B. Dixon; Maidu culture

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsules:
6 florets of *Bromus hordeaceus* L., soft brome, Poaceae
4 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
3 nutlets of *Amsinckia* sp., fiddleneck, Boraginaceae
1 floret of *Deschampsia* sp., hair grass, Poaceae
1 seed of *Ranunculus*, possibly *R. californicus* Benth., California buttercup, Ranunculaceae.
1 nutlet of *Cryptantha* sp., cryptantha, Boraginaceae

**Identification made by:** J. Effenberger & D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3760** | 4-7-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-10460 - Flat dark brown seeds. 10461 is made from these seeds; California; Madera; Fresno Flat; coll. Dr. Samuel A. Barett; Culture: Yokuts; 1906

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, *The Jepson Manual: Higher Plants of California*, University of California Press, M. elegans is highly variable and intermediates blur distinction among extremes.

Other items found and placed in gelatin capsules:
62 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
17 seeds of *Ranunculus californicus* Benth.,California buttercup, Ranunculaceae.
13 seeds of *Collinsia heterophylla* G. Buist ex Graham, Chinese houses, Plantaginaceae (also placed in Scrophulariaceae and Veronicaceae)
9 seeds of *Dichelostemma capitatum* (Benth.) Alph. Wood, bluedicks, Themidaceae
3 seeds of *Triteleia*, possibly *Triteleia hyacinthina* (Lindl.) Greene, white brodiaea, Themidaceae
13 florets of *Melica californica* Scribn., California melic, Poaceae
11 florets of *Poa secunda* J. Presl, Sandberg bluegrass , Poaceae
3 seeds of *Trifolium obtusiflorum* Hook., clammy clover, Fabaceae
1 seed of *Lupinus* sp., lupine, Fabaceae
1 nutlet of *Amsinckia* sp., popcorn flower, Boraginaceae
1 floret of *Bromus diandrus* , ripgut grass, ripgut brome, Poaceae
1 mericarp of *Sanicula* sp., sanicle, Apiaceae

**Identification made by:** D. Joley & J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3761** | 4-27-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-11970 - black seeds; California, Mendocino, Round Valley; coll. Dr. Samuel A. Barrett, July 1907; Yuki culture

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia sativa* Molina, coast tarweed, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. sativa* is closely related to and partly interfertile with *M. gracilis*.

Other items found and placed in gelatin capsules:
1 achene of *Lactuca* sp., Asteraceae

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3762** | 4-6-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-11991 (1/2) - Various kinds; parched; California; Mendocino; Round Valley; coll. Dr. Samuel A. Barrett; Culture: Yuki; July 1907

## Laboratory Results:

The main component of the specimen consists of a mixture of species placed in small plastic bags:
*Plectritis congesta* (Lindl.) DC., shortbush seablush, Valerianaceae (fruits)
*Ranunculus californicus* Benth., California buttercup Benth., Ranunculaceae (seeds)
*Layia chrysanthemoides* (DC.) A. Gray, smooth tidytips, Asteraceae (ray and disk achenes placed in separate gelatin capsules).

Other items found and placed in gelatin capsules:
41 seeds of *Capsella bursa-pastoris* (L.) Medik., shepherd's purse, Brassicaceae
38 nutlets of *Amsinckia* sp., fiddleneck, Boraginaceae
18 florets of *Vulpia myuros* (L.) C. C. Gmel., rat tail fescue, Poaceae
8 florets and spikelets of *Bromus hordeaceus* L., soft brome, Poaceae
4 achenes of *Achyrachaena mollis* Schaure, blow wives, Asteraceae
3 seeds of *Cerastium glomeratum* Thuill., sticky mouse-ear chickweed, Caryophyllaceae
1 seed of *Lepidium nitidum* Nutt., shining pepperweed, Brassicaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3763** | 4-7-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-11991 (2/2) - Various kinds; parched; California; Mendocino; Round Valley; coll. Dr. Samuel A. Barrett; Culture: Yuki; July 1907

## Laboratory Results:

The main component of the specimen consists of a mixture of species placed in small plastic bags:
*Plectritis congesta* (Lindl.) DC., shortbush seablush, Valerianaceae (fruits)
*Ranunculus californicus* Benth., California buttercup Benth., Ranunculaceae (seeds)
*Layia chrysanthemoides* (DC.) A. Gray, smooth tidytips, Asteraceae (ray and disk achenes placed in separate gelatin capsules).

Other items found and placed in gelatin capsules:
30 nutlets of *Amsinckia* sp., fiddleneck, Boraginaceae
12 florets of *Vulpia myuros* (L.) C. C. Gmel., rat-tail fescue, Poaceae
7 florets of *Bromus hordeaceus* L., soft brome, Poaceae
3 seeds of *Capsella bursa-pastoris* (L.) Medik., shepherd's purse, Brassicaceae
1 achene of *Achyrachaena mollis* Schaure, blow wives, Asteraceae
1 seed of *Lepidium nitidum* Nutt., shining pepperweed, Brassicaceae
1 seed of *Trifolium*, possibly *T. dichotomum*, Hook. & Arn., branched Indian clover, Fabaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3765** | 4-27-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-21687 - Bottle of black seed (*Madia* sp.); california, Madera, North Fork; coll. Edward W. Gifford, August 1918; Western Mono culture

## Laboratory Results:

The main component of the specimen consists of achenes of *Madia elegans* D. Don ex Lindl., common madia, Asteraceae. Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *M. elegans* is highly variable and intermediates blur distinction among extremes.

Other items found and placed in gelatin capsules:
4 seeds of *Dichelostemma capitatum* (Benth.) Alph. Wood, bluedicks, Themidaceae
3 florets of *Vulpia microstachys* (Nutt.) Munro, small fescue, Poaceae
1 nutlet of *Cryptantha* sp., cryptantha, Boraginaceae
1 floret of Melica, possibly *Melica californica* Scribn., California melic, Poaceae
1 mericarp of *Sanicula* sp., sanicle, Apiaceae

**Identification made by:** J. Effenberger & D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3766** | 4-27-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-26968 (1 of 2) - Sunflower "chia" and grassnut seeds; California, Inyo, Bishop; coll. Dr. Julian H. Steward, July 1927; Eastern Mono culture

## Laboratory Results:

The main component of the specimen consists of a mixture of achenes of *Helianthus annuus* L., common sunflower (Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *H. annuus* is highly variable and hybridizes with several other species), and seeds of *Salvia columbariae* Benth., chia. Lamiaceae (placed in a gelatin capsule).

Other items found and placed in a gelatin capsule:
2 tubers of *Cyperus esculentus* L., yellow nutsedge, Cyperaceae.

**Identification made by:** J. Effenberger & D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3767** | 4-27-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-26968 (2 of 2) - Sunflower "chia" and grassnut seeds; California, Inyo, Bishop; coll. Dr. Julian H. Steward, July 1927; Eastern Mono culture

## Laboratory Results:

The main component of the specimen consists of a mixture of achenes of *Helianthus annuus* L., common sunflower (Note: According to the treatment in Hickman, J. C., 1993, The Jepson Manual: Higher Plants of California, University of California Press, *H. annuus* is highly variable and hybridizes with several other species), and seeds of *Salvia columbariae* Benth., chia. Lamiaceae (placed in gelatin capsule).

Other item found and placed in a gelatin capsule:
1 tuber of *Cyperus esculentus* L., yellow nutsedge, Cyperaceae.

**Identification made by:** J. Effenberger & D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3768** | 4-27-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-27133 - Winnowed seeds of Av'a, *Atriplex* sp. Centifoemis; California, San Diego, Yuma Reservation; coll. Edward W. Gifford, July 1929; Yuma culture

## Laboratory Results:

The main component of the specimen consists of seeds and fruiting bracts of *Atriplex* sp., saltbush, Chenopodiaceae.

**Identification made by:** J. Effenberger

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Jim Effenberger, Senior Seed Botanist
AOSA Certified Seed Analyst - SCST Registered Seed Technologist (Seal no. 137)
AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3769** | 4-7-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-102160 (1/2) - ? seeds; California; Fresno; Dunlap; original owner Mrs. Ida Dick; coll. Franklin Fenenga & Francis A. Riddell; Sept. 1948

## Laboratory Results:

The main component of the specimen consists of seeds of *Salvia columbariae* Benth., chia. Lamiaceae.

Other items found and placed in gelatin capsules:
1 seed of *Phacelia* sp., phacelia, Hydrophyllaceae
1 seed of unknown Brassicaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted. The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3770** | 4-7-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-102160 (2/2) - ? seeds; California; Fresno; Dunlap; original owner Mrs. Ida Dick; coll. Franklin Fenenga & Francis A. Riddell; Sept. 1948

## Laboratory Results:

The main component of the specimen consists of seeds of *Salvia columbariae* Benth., chia. Lamiaceae.

Other items found and placed in gelatin capsules:
2 seeds of unknown Brassicaceae
1 nutlet of *Cryptantha* sp., cryptantha, Boraginaceae

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3771** | 4-7-2010 |

Applicant:

Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:

Cat. #1-236789a - Water bottle. Pitched (*Pinus monophylla*), twined, upper portion weathered away. Remains of two carrying loops of human hair. Ornamented with 4 rows of 3-strand twining above the shoulder. Diagonal twining and 3-strand twining in peeled shoot materials for warp and weft. Patch of woolen trade cloth on base; California; Inyo Last Chance Mountains; coll. Mary Dedecker; culture Panamint; 19 July 1975

## Laboratory Results:

The specimen consists of:
4 florets of *Achnatherum hymenoides* (Roem. & Schult.) Barkw., Indian ricegrass, Poaceae
4 caryopses of *Swallenia alexandrae* (Swallen) Soderstr. & , H. F. Decker, Eureka dune grass, Poaceae (endangered-U.S.; rare-California)

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory

**California Department of Food and Agriculture**
Plant Pest Diagnostics Branch/Seed Laboratory
3294 Meadowview Road, Sacramento, California 95832-1448
Telephone (916) 262-1100; FAX (916) 262-1190

# Identification Report

| Report Number: | Date Reported: |
|---|---|
| **3772** | 4-7-2010 |

Applicant:
Joan Knudsen
Phoebe A. Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

Applicants information:
Cat. #1-236789b - Seeds found in basket: *Dicoria canescens* sp. *clarkae*; California; Inyo Last Chance Mountains; coll. Mary Dedecker; culture Panamint; 19 July 1975

## Laboratory Results:

The main component of the specimen consists of achenes of *Dicoria canescens* Gray, desert twinbugs, Asteraceae.
Other items found and placed in gelatin capsules:
4 florets of *Achnatherum hymenoides* (Roem. & Schult.) Barkw., Indian ricegrass, Poaceae
3 seeds of *Salvia* sp., sage, Lamiaceae
2 caryopses of *Swallenia alexandrae* (Swallen) Soderstr. & , H. F. Decker, Eureka dune grass, Poaceae (endangered-U.S.; rare-California)

**Identification made by:** D. Joley

This identification report is based on the sample submitted.
The applicant is responsible for the accuracy of the information submitted and listed as applicant's information.

Don Joley, Senior Seed Botanist

AOSA Member Laboratory