Weed Technology

www.cambridge.org/wet

Intriguing World of Weeds

Cite this article: Byrd J, Zaccaro-Gruener ML, Wright-Smith H, Randell-Singleton T (2024) Contributions by USDA to weed science before 1900. Weed Technol. **38**(e71), 1–15.
doi: 10.1017/wet.2024.37

Received: 14 March 2024
Revised: 20 April 2024
Accepted: 12 May 2024

Corresponding author:
John D. Byrd Jr.; Email: jbyrd@pss.msstate.edu

© The Author(s), 2024. Published by Cambridge University Press on behalf of Weed Science Society of America. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

Contributions by USDA to weed science before 1900

John Byrd[1], Maria L. Zaccaro-Gruener[2], Hannah Wright-Smith[3] and Taylor Randell-Singleton[4]

[1]Department of Plant and Soil Sciences, Mississippi State University, Mississippi State, MS, USA; [2]Department of Crop and Soil Sciences, University of Georgia, Athens, GA, USA; [3]University of Arkansas, Little Rock, AR, USA and [4]Department of Crop and Soil Sciences, University of Georgia, Tifton, GA, USA

Abstract

All field scientists involved with weed management understand the importance of accurate weed identification and appreciate the need for widely recognized common names. USDA played a pivotal and critical role with the effort to advance our discipline while weed science was in its infancy.

Introduction

In an article recently published in *Weed Science*, Young et al. (2023) provided an outstanding overview of recent contributions to our discipline by the Agricultural Research Service (ARS) branch of the United States Department of Agriculture (USDA). The objective of this review, however, is to provide an overview of contributions from the USDA to better identification, understanding, and management of weeds in the earliest years of the agency's existence. Rather than include the many hundreds of softbound documents published by the USDA, such as bulletins, circulars, pamphlets, handbooks, etc., the focus of this article is an overview of the historically significant material relevant to weed science featured in the hardbound yearly summary document initially titled *Report of the Commissioner of Agriculture*, retitled as *Report of the Secretary of Agriculture* in 1889, then retitled again in 1894 as the *Yearbook of Agriculture of the United States Department of Agriculture*.

Pre-USDA Creation

Individuals with strong agricultural interests in New York, Pennsylvania, Massachusetts, and South Carolina formed state organizations in the late 1700s to promote and advance agriculture in their states (Baker et al. 1963; Poore 1867; True 1925). English agriculturalist John Sinclair advised George Washington to create an umbrella organization that could oversee these state organizations and advances in agriculture on a national scale (Newton 1863), which Washington did in his final address to Congress in 1796 (Baker et al. 1963; Poore 1867). Unfortunately, Washington did not see that agency formed. Instead, Congress tasked the U.S. Office of Patents with the responsibility of documenting and overseeing advances in agricultural technology (Baker et al. 1963).

After this Congressional directive, a few agricultural advances relevant to weed science appeared in the *Report of the Commissioner of Patents for the Year 1851. Part II. Agriculture* (Anonymous 1852a). One advance, for example, was cultivation and production methods of a "new oil plant" known today as false flax [*Camelina sativa* (L.) Crantz] (Anonymous 1852b). Four years earlier, William Darlington (1847) categorized false flax as a "pernicious and troublesome" weed of U.S. agriculture. Another example from the same *Report* (Anonymous 1852a) was part of a letter dated 1850 that was sent to the Patent Office by JD Macgowan, a physician and corresponding member of the Agricultural and Horticultural Society of India, which described procedures used by the people of China to harvest, extract, and use oil from seed of the Chinese tallow tree [*Triadica sebifera* (L.) Small = *Stillingia sebifera* (L.) Michx (Govaerts et al. 2000)]. Chinese tallow tree was already present in the United States, as 80 yr earlier, Benjamin Franklin had shipped Chinese tallow tree seed to botanist John Bartram to observe and cultivate as a potential oil crop (Franklin 1772). By the time botanist Stephen Elliott (1824) published his text of the flora of Georgia and South Carolina, he stated that Chinese tallow trees produced seed abundantly, but the oil was not used. He further stated that Chinese tallow had completely naturalized on the coasts of South Carolina and Georgia, which should have been an indication of the invasiveness of the species. This exotic woody plant continues to spread in natural areas, as the authors of the present article have observed Chinese tallow trees not only in South Carolina and Georgia but also in North Carolina, Florida, Alabama, Mississippi,

Louisiana, and Texas. In addition to those southeastern states, Weakley (2022) reports that Chinese tallow also occurs in Arkansas and southeastern Oklahoma, and waifs occur in Tennessee and Kentucky. Also published in the *Report of Patents for 1851* (Anonymous 1852a) was a testimonial titled "On Chess in Wheat" by J Brady (1852), a farmer from Brookville, IN, dispelling the widespread local belief that wheat (*Triticum aestivum* L.) evolved into ("will change to") chess (*Bromus* spp.). Brady explained that by carefully roguing wheat fields before harvest, at harvest, and during threshing, carefully cleaning and recleaning wheat seed reserved for planting, and only planting into the cleanest fields for 3 yr, no wheat had changed into chess. Following these practices, both wheat yield and flour quality had improved. He also stated, "I think I may safely say that not a grain of wheat has changed to chess on that farm, though it has been exposed to all the casualties that are commonly supposed to produce the change. I will even venture the prediction that not a grain ever will change."

The idea of creating a separate agency to oversee advances in agriculture was still being discussed among government officials and agencies. Patent Office Commissioner Thomas Ewbank (1852) stated that there had been favorable support by the public and from agricultural societies and organizations within the Union for years, resolutions of support had been passed by several states, and U.S. Presidents Taylor and Fillmore encouraged Congress to act. Although there had been much debate in Congress, the responsibility of overseeing agricultural advancements for the entire United States remained the task of a "temporary clerk" in the U.S. Patent Office. Furthermore, Congressional appropriations to cover expenses affiliated with agricultural advances borne by the Office of Patents were insufficient. Commissioner Ewbank stated that a department of agriculture needed to be created and housed in the Smithsonian Institute as dictated in James Smithson's will (Ewbank 1852; Goode 1897; Rhees 1880). As an example of the type of agricultural work potentially overseen by a department of agriculture that could benefit humanity forever, Ewbank quoted (but did not provide complete details of the citation) from a letter titled "Two hundred, five hundred, or even a thousand new vegetables, *ad libitum*", cultural experiments by agriculturalists MM Naudin and Lecoq to grow the thistle [*Lophiolepis eriophora* (L.) Del Guacchio, Bureš, Iamonico & P.Caputo = *Cirsium eriophorum* (Mirek et al. 2020)] with edible "thorns" and *Heracleum spondylum* L., a plant of the same genus as giant hogweed (*Heracleum mantegazzianum* Sommier & Levier), for livestock and human consumption. Because of the success of these two agriculturalists, Ewbank hoped Americans could soon enjoy consuming dock (*Rumex* spp.) and pigweed (*Amaranthus* spp.) with enthusiasm similar to green peas and asparagus.

USDA Is Formed

Sixty-six years after George Washington's final address to Congress, a year and 2 mo following his inauguration as 16th President of the United States, and less than a year into an internal conflict between the Union and the Confederacy, Abraham Lincoln signed into law the act to form the United States Department of Agriculture on May 15, 1862 (Anonymous 1863; Baker et al. 1963). The primary objective for the newly formed agency stated in the Act is "to acquire and to diffuse among people of the United States useful information on subjects connected with agriculture in the most general and comprehensive sense of that word, and to procure, propagate, and distribute among the people new and valuable seeds and plants." (Anonymous 1863; Baker et al. 1963). The complete Act passed by Congress and signed by President Lincoln can be found in the first *Report of the Commissioner of Agriculture for the Year 1862* (Anonymous 1863). Readers interested in an in-depth historical overview of the background that ultimately resulted in the formation of the USDA should see Baker et al. (1963) or for a very brief overview of the diversity of contributions to advance agricultural productivity in the United States during the first century of existence, see *After A Hundred Years The Yearbook of Agriculture for 1962* (Stefferud 1963).

Four years after the formation of USDA and 3 yr after his death (Harshberger 1899), Dr. William Darlington's list of the 100 most common and troublesome weeds to American agriculture was printed on pages 509 to 519 in *The Report of the Commissioner of Agriculture for 1865* (Darlington 1866). Although Darlington's list of weeds was numbered to 100, an additional dozen species of vascular plants he also considered weedy were blended into the accompanying text. He also included four fungi. Both scientific and common names of the era were provided for weeds in his list and the life cycle. Most of the written descriptions of the weediness of these plants were taken from American Weeds and Useful Plants: Being a Second and Illustrated Edition of Agricultural Botany: An Enumeration and Description of Useful Plants Which Merit the Notice, or Require the Attention of American Agriculturalists (Darlington and Thurber 1859). Although William Darlington was a physician, not a USDA scientist, this compilation and list of characteristics that make these plants weedy is the earliest weed science information published by the then 4-yr-old USDA. As the USDA developed and grew in its number of scientists and collaborators, more articles relevant to weed science appeared in the publication highlighting advancements of the previous year.

Botanists Hired by USDA

In the late 1860s, USDA hired a botanist whose first commentary titled "Report of the Botanist" appeared in the *Report of the Commissioner of Agriculture for the Year 1869* (Parry 1870). The botanist, Dr. Charles Parry, had been part of the explorers who went to Alaska to interact with native people and identify indigenous plants useful for timber, food, or agricultural production (Dall 1869). In the role of USDA Botanist, Parry's initial focus was to create and build the USDA Herbarium (Parry 1870). However, his tenure in this role was short. The position of Botanist was vacant from September 1871 until April of 1872 (Vasey 1874), when Dr. George Vasey was hired. He remained in the position until he died in 1893 (Coville 1894). In addition to continuing to build the USDA Herbarium, Vasey's focus as USDA Botanist over the first decade was to collect and identify pastoral, medicinal, and toxic plants. Plants in these groups will be covered in a later article. He also prepared a display of trees in the United States that was displayed at the Centennial Exposition of 1876 in Philadelphia, and expositions held in other cities of the United States (Vasey 1876, 1877).

Perhaps because of the large number of specimens mailed for identification and inquiries related to control sent to the USDA Botanist, Vasey (1887) realized the need for a resource to aid in weed identification, which he stated in his Report (Figure 1). Vasey's awareness of this need is of primary significance to our discipline today, as few weed scientists are proficient plant taxonomists. As is taught in many introductory weed science, pest management, and pesticide certification training courses, the first

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

As much loss and injury to crops result from the presence of pernicious weeds, as a guide to their recognition and destruction, we present a paper on some of the more important and common weeds of cultivated grounds, with instructions as to the means of eradicating them; this practical part of the information being from the pen of Mr. A. A. Crozier, the Assistant Botanist.

Figure 1. Screenshot from Vasey (1887).

HINTS ON KILLING WEEDS.

1. Plants cannot live indefinitely deprived of their leaves. Hence preventing their appearance above the surface will kill them sooner or later.
2. Plants have greater need for their leaves, and can be more easily killed in the growing season than when partially dormant.
3. Cultivation in a dry time is most injurious to weeds and beneficial to crops.
4. Avoid the introduction of weeds in manure or litter or from weedy surroundings. Some gardeners use no stable manure on grounds they desire to keep especially clean, relying on commercial fertilizers and the plowing under of green crops.
5. After a summer crop has ripened, instead of allowing the land to grow up to weeds it is often well to sow rye or some other crop to cover the ground and keep them down.
6. Give every part of the farm clean cultivation every few years either with a hoed crop or, if necessary, with a fallow.
7. It is often stated that cutting weeds while in flower will kill them. This is only reliable with biennials, and with them only when done so late that much of the seed will grow.
8. If the ground is kept well occupied with other crops weeds will give much less trouble. Keep meadows and roadsides well seeded and plow-land cultivated, except when shaded by crops.

Figure 2. Suggestions for weed control drafted by AA Crozier as part of the report by Vasey (1887).

step to successful pest management is accurate identification of the pest, a strategy parallel to fighting diseases of humans and animals. In his report, Vasey included a subsection titled *Weeds of Agriculture* that listed by scientific name of the era, 16 weeds, and botanical description, weedy characteristics, and hand-drawn illustrations. In that same report, he tasked USDA Assistant Botanist AA Crozier to draft general weed control suggestions, shown in Figure 2 (Vasey 1887). The effort Vasey started in the 1886 Report of the Commissioner was an organized attempt to help agriculturalists more easily and accurately identify weeds causing crop and/or animal losses across the country. This USDA effort significantly influenced the discipline of weed science, as several illustrations were produced to facilitate weed identification. Dr. Vasey continued the weed identification focus with drawn illustrations included in Reports of the Botanist for the years of 1887, 1888, 1889, 1890, 1891, and 1892, although the number of weeds described and illustrated varied by year. The Report of the Botanist for the year 1887 (Vasey 1888) contained written descriptions and illustrations of nine weeds, which was triple the number in the Report for the year 1888 (Vasey 1889a), as only three plant descriptions contained the noun weed. All plants characterized with the noun weed were also illustrated. In his report for the year 1889, Vasey (1889b) highlighted the importance of USDA's Botanical Division and Herbarium as a resource to help agriculturalists identify new weeds that appear on the farm or plants that may cause crop losses or other injury to people or livestock. He gave the example of identification of dodder (*Cuscuta* spp.) in alfalfa fields in California, introduced in seed imported from Chile (spelled Chili in the Report), as evidence of the ability and importance of this work to assist agriculturalists. Assistant Botanist FV Coville (1889) drafted descriptions with drawings of 10 weeds titled "*Noxious Weeds*" in the botanist report. In the introductory paragraph, Coville emphasized the importance of preventing seed production as a management strategy for annual weeds. He suggested cultivation during crop production, followed by burning, mowing, and plowing before weeds matured seeds after crop harvest as well as along fence rows and areas adjacent to cropland to minimize future infestations. To control perennial weeds, he stated that constant cultivation would be required. The following year the subsection titled "*Noxious Weeds*" (Coville 1890) was also part of the report from the Division of Botany, with six additional weeds described and illustrated as well as two forage grasses. Those weeds characterized as noxious by Coville in Reports of 1889 and 1890 are presented in Table 1.

Two weeds, hemp broomrape (called branched broomrape in his report) (*Orobanche ramosa* L.) and prickly Russian thistle (called saltwort in his report) [*Salsola tragus* L. = *Salsola kali* L. ssp. *tragus* (L.) Celak.] were described and illustrated in "*Two Weeds New to the United States*" by Assistant Botanist JN Rose (1892) as a subsection of the Report of the Botanist for 1891 (Vasey 1892). As apparently had happened with some other species of weeds, Rose stated his hope was that both species would disappear as quickly as they had appeared. That did not happen, however, as the following year, Vasey (1893) stated that the USDA's Division of Botany objective was also to investigate weed problems. This was prompted by prickly Russian thistle invasion in the upper Midwest. USDA Assistant Botanist LH Dewey was assigned this task. He summarized that losses due to prickly Russian thistle in Iowa, Minnesota, and the Dakotas exceeded $2 million in 1892. Based on information he could gather, Dewey speculated that prickly Russian thistle was introduced into South Dakota in the late 1870s as a contaminant of flax seed imported from Europe. He

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

Table 1. Alphabetical list of weeds classified as noxious by the USDA (from Coville 1889, 1890) Current common and scientific names taken from USDA Plants Database unless otherwise specified

Common name	Scientific name	Common name	Scientific name
	2024		**1889**
Bitter dock	*Rumex obtusifolius* L.	Bitter dock	*Rumex obtusifolius*
Bull thistle	*Cirsium vulgare* (Savi) Ten.	Bull thistle	*Cnicus lanceolatus*
Charlock mustard	*Sinapis arvensis* L. (WFO 2023)	Charlock	*Brassica sinapistrum*
Common sowthistle	*Sonchus oleraceus* L.	Sow thistle	*Sonchus oleraceus*
Curly dock	*Rumex crispus* L.	Yellow dock	*Rumex crispus*
Devil's beggartick	*Bidens frondose* L.	Pitchforks	*Bidens frondosa*
Hedge false bindweed	*Calystegia sepium* (L.) R. Br. ssp. *sepium*	Hedge bindweed	*Convolvulus sepium*
Jimsonweed	*Datura stramonium* L.	Jimsonweed	*Datura stramonium*
Spiny amaranth	*Amaranthus spinosus* L.	Thorny amaranth	*Amaranthus spinosus*
Stinking chamomile	*Anthemis cotula L.*	Mayweed	*Anthemis cotula*
	2024		**1890**
Canada toadflax	*Nuttallanthus canadensis* (L.) D.A. Sutton	Toad flax	*Linaria canadensis*
Clover dodder	*Cuscuta epithymum* (L.) L.	Clover dodder	*Cuscuta trifolii*
Great ragweed	*Ambrosia trifida* L.	Horseweed	*Ambrosia trifida*
Killdevil	*Hieracium praealtum* Vill. ex Gochnat	Orange hawkweed	*Hieracium aurantiacum*
Narrowleaf plantain	*Plantago lanceolata* L.	English plantain	*Plantago lanceolata*
Sanddune sandbur	*Cenchrus tribuloides* L.	Bur grass	*Cenchrus tribuloides*

gathered anecdotal information on habitats most suitable for invasion, reason for rapid spread, as well as management methods. Management included intensive grazing juvenile plants with sheep, plowing in early fall, burning crop stubble, and raking and burning prickly Russian thistle debris in fallow fields, all with the primary focus to prevent seed production. An illustration of prickly Russian thistle was also included in the Report (Vasey 1893).

Fredrick Coville was named USDA Botanist after Vasey's death in 1893 (Coville 1894). He stated in his first report that the primary objective for the USDA's Division of Botany, as outlined by Congress, was to investigate "forage plants, weeds, medicinal plants, and other subjects in economic botany." A second objective was to manage, oversee, and add to the collection of plants in the United States and other countries. He included additional information on prickly Russian thistle in his initial report, which by 1893 had spread into Kansas, Nebraska, Wisconsin, and Wyoming, with estimated losses due to this weed between $3 million and $6 million. He speculated that without a concerted and organized effort to slow the spread, it would move across the Great Plains and other wheat-growing regions of the United States (Coville 1894).

In 1894, the USDA changed the title of the year-end publication that highlighted the most significant contributions to agriculture from *Report of the Secretary of Agriculture* to *Yearbook of the United States Department of Agriculture* (Anonymous 1895). That year, information of specific relevance to weed science listed in the table of contents was titled "*Table of one hundred weeds*", described in the article as the weeds most troublesome in U.S. agriculture (Anonymous 1895). The individual who compiled this list was not revealed, nor were illustrations of any weeds provided. In addition to common weed names, the table included scientific names of the era, distribution across the United States, life cycle, time of flowering, time of seed production, flower characteristics such as color and size, seed dissemination method, crops or other areas affected, and method(s) of eradication, which for most weeds was prevention of production, cultivation (or hoeing, plowing, hand removal), smother crops, grazing, etc. Additionally, application of coal oil to the roots of two specific weeds, man of the earth [*Ipomoea pandurata* (L.) G. Mey.] and Missouri gourd [*Cucurbita foetidissima* Kunth = *Cucurbita perennis* (Plants of the World Online 2023)], was suggested as another method of eradication. Thus, coal oil was the only chemical or "herbicide" treatment recommended.

A similar, but more inclusive table of weeds appeared in the *Yearbook* for 1895 (Anonymous 1896). In this table, the number of specimens was doubled to list the 200 weeds deemed most troublesome to U.S. agriculture. The entry was titled "*Two Hundred Weeds: How to Know Them and How to Kill Them*" in the table of contents. Again, the individual that drafted this list was not stated. The preface to this list of weeds, however, included several paragraphs of weed control suggestions that were not printed the previous year. In these weed control suggestions, in addition to coal oil, other chemical compounds or "herbicides" were recommended, including salt, strong brine, crude sulfuric acid, and carbolic acid as treatments to control perennial weeds. As this list of weeds contained the largest number of plants listed by the USDA as the most problematic to U.S. agriculture in the 19th century, these are provided in Table 2, alphabetized by current common name and scientific names from the USDA NRCS Plants Database. Also included in Table 2 are those plants identified as weeds reported in earlier Reports or Yearbooks and that appeared in lists of *Yearbooks* through the end of the 19th century. If the weed was illustrated in any of those volumes, the year is shown in bolded type.

Though not an obvious "weed science relevant" find in the *Yearbook* of 1895, Coville (1896) wrote an article on the absence of salads and green pot herbs in diets of Americans. He speculated that the absence of leafy greens could be the reason Americans had the reputation as "bilious"; therefore, he suggested several plants that could be incorporated into the American diet to correct this

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

Table 2. Two hundred weeds alphabetized by common name with scientific name (USDA NRCS 2023 unless otherwise stated) from the Yearbook of the United States Department of Agriculture 1895 (Anonymous 1896). Plants identified as weeds included in other USDA year-end summary volumes lists also indicated by year with years in boldface type indication of illustration included

Current common name	Current scientific name	Common names	Scientific name published	Listed in other reports/yearbooks
USDA NRCS 2023 (unless otherwise indicated)		**1896**		**Year**
American burnweed	*Erechtites hieraciifolius* (L.) Raf. ex DC.	Fireweed	*Erechtites hieracifolia*	1865[a]
American licorice	*Glycyrrhiza lepidota* Pursh	Wild licorice	*Glycyrrhiza lepidota*	
American pokeweed	*Phytolacca americana* L. var. *americana*	Pokeweed, garget, pigeon berry, skoke	*Phytolacca decandra*	1865
American star-thistle	*Centaurea americana* Nutt.	Texas thistle, American centaury, star thistle	*Centaurea americana*	1894
American wild carrot	*Daucus pusillus* Michx.	Small carrot, bristly carrot, Southern carrot	*Daucus pusillus*	1894
Annual ragweed	*Ambrosia artemisiifolia* L.	Ragweed, bitterweed, hogweed, little ragweed, richweed, Roman wormwood	*Ambrosia artemisiæfolia*	1865, **1886**, 1894, 1897
Antilles fanpetals	*Sida ulmifolia* Mill. (WFO 2023)	Paroquet bur	*Sida stipulata*	1894
Arrowhead rattlebox	*Crotalaria sagittalis* L.	Rattlebox	*Crotalaria sagittalis*	1894
Barnyardgrass	*Echinochloa crus-galli* (L.) P. Beauv.	Barnyardgrass, barngrass, cocksfoot, watergrass	*Panicum crus-galli*	1865, 1894
Beggarslice	*Hackelia virginiana* (L.) I.M. Johnst.	Stick-seed, beggar's lice	*Lappula virginiana*	
Bermudagrass	*Cynodon dactylon* (L.) Pers.	Bermuda grass, dogs-tooth grass, scutch grass, wire grass	*Capriola dactylon*	1865[b]
Bitter dock	*Rumex obtusifolius* L.	Bitter dock, broadleaved dock, yellow dock	*Rumex obtusifolius*	1865, **1889**
Black bindweed	*Polygonum convolvulus* L.	Wild buckwheat, black bindweed	*Polygonum convolvulus*	1894
Blackeyed Susan	*Rudbeckia hirta* L.	Yellow daisy, brown-eyed Susan, cone flower, niggerhead, ox-eye daisy	*Rudbeckia hirta*	1894
Black medick	*Medicago lupulina* L.	Nonesuch, black medick, medicago	*Medicago lupulina*	
Black mustard	*Brassica nigra* (L.) W.D.J. Koch	Black mustard, brown mustard, grocers' mustard	*Brassica nigra*	1894
Black nightshade	*Solanum nigrum* L.	Nightshade, black-berried nightshade	*Solanum nigrum*	1865
Blessed milkthistle	*Silybum marianum* (L.) Gaertn.	Milk thistle, holy thistle, our lady's thistle	*Silybum marianum*	
Bouncing bet	*Saponaria officinalis* L.	Bouncing bet, hedge pink, soapwort	*Saponaria officinalis*	
Broomsedge bluestem	*Andropogon virginicus* L.	Broom sedge, sedge grass, Virginia beardgrass	*Andropogon virginicus*	
Buffalobur nightshade	*Solanum rostratum* Dunal	Buffalo bur, beaked horse nettle, Rocky Mountain sand bur, sand bur, spiny nightshade	*Solanum rostratum*	1894
Bugseed	*Corispermum hyssopifolium* L.	Bugseed	*Corispermum hyssopifolium*	
Bull thistle	*Cirsium vulgare* (Savi) Ten.	Bull thistle, bird thistle, boar thistle, pasture thistle	*Carduus lanceolatus*	1865[c], **1889**, 1894, 1897
Burclover	*Medicago polymorpha* L.	Bur clover, toothed medick	*Medicago denticulata*	
Butter and eggs	*Linaria vulgaris* Mill.	Ramsted, butter and eggs, devil's flax, impudent lawyer, snapdragon, toadflax	*Linaria linaria*	1865[d], 1894[e]
Caesarweed	*Urena lobata* L.	Spanish bur	*Urena lobata*	
California nettle	*Urtica dioica* L. ssp. *gracilis* (Aiton) Seland.	Slender nettle	*Urtica gracilis*	1865[f]
Canada cocklebur	*Xanthium strumarium* (L.) var. *canadense* (Mill.) Torr. & A. Gray	Cocklebur, clot bur	*Xanthium canadense*	1865[g], **1886**, 1894, 1897, **1898**
Canada thistle	*Cirsium arvense* (L.) Scop.	Canada thistle, creeping thistle, cursed thistle	*Carduus arvensis*	1865[h], **1886**[i], 1894, 1897
Canadian horseweed	*Erigeron canadensis* L. (WFO 2024) *Conyza canadensis* (L.) Cronquist var. *canadensis*	Horseweed, butterweed, colt's tail, fleabane	*Erigeron canadense*	1865, 1894[j], 1897
Caraway	*Carum carvi* L.	Caraway, garden caraway	*Carum carui*[k]	
Carelessweed	*Cyclachaena xanthiifolia*	Marsh elder, false ragweed, false sunflower, high-water shrub	*Iva xanthiifolia*[l]	1894, **1898**

(*Continued*)

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

Table 2. (*Continued*)

Current common name	Current scientific name	Common names	Scientific name published	Listed in other reports/yearbooks
Carolina horsenettle	*Solanum carolinense* L.	Horse nettle, bull nettle, radical, sand brier	*Solanum carolinense*	1865, **1886**, 1894, 1897
Cat greenbrier	*Smilax glauca* Walter	Chainy brier, bamboo, china brier, saw brier	*Smilax glauca*	
Catnip	*Nepeta cataria* L.	Catnip, catmint, catnep	*Nepeta cataria*	1865
Charlock mustard	*Sinapis arvensis* L. (WFO 2023)	Charlock, wild mustard, yellow mustard	*Brassica sinapistrum*	**1889**, 1894, 1897
Cheeseweed mallow	*Malva parviflora* L.	Small-flowered mallow, malva	*Malva parviflora*	1894
Chicory	*Cichorium intybus* L.	Chicory, succory	*Cichorium intybus*	1865
Clasping Venus' looking-glass	*Triodanis perfoliata* (L.) Nieuwl.	Venus looking-glass	*Legouzia perfoliata*[m]	
Climbing false buckwheat	*Polygonum scandens* L.	Climbing false buckwheat, bindweed	*Polygonum scandens*	
Clover dodder	*Cuscuta epithymum* (L.) L.	Clover dodder, devil's gut, dodder	*Cuscuta epithymum*	**1890**[n], 1894[n]
Coastal manroot	*Marah oreganus* (Torr. & A.Gray) Howell	Big root, man-in-the-ground, wild gourd	*Megarrhiza oregona*	
Coast tarweed	*Madia sativa* Molina	Tarweed, California tarweed	*Madia sativa*	1894
Cockroach berry	*Solanum capsicoides* All.	Spiny nightshade	*Solanum aculeatissimum*	1894
Common boneset	*Eupatorium perfoliatum* L.	Boneset, ague weed, fever weed, thoroughwort	*Eupatorium perfoliatum*	
Common chickweed	*Stellaria media* (L.) Vill. ssp. *media*	Chickweed, common chickweed	*Alsine media*	
Common corncockle	*Agrostemma githago* L.	Corn cockle, bastard migella, cockle, rose campion	*Agrostemma githago*	1865, **1886**[o], 1894, 1897
Common cowparsnip	*Heracleum maximum* W. Bartram	Cow parsnip, masterwort	*Heracleum lanatum*	
Common dandelion	*Taraxacum officinale* F.H.Wigg.	Dandelion	*Taraxacum taraxacum*[p]	1865[q], 1894, 1897
Common evening primrose	*Oenothera biennis* L.	Evening primrose	*Œnothera biennis*	
Common fiddleneck	*Amsinckia menziesii* (Lehm.) A. Nelson & J.F. Macbr. var. *intermedia* (Fisch. & C.A. Mey.) Ganders	Yellow bur weed, fireweed, yellow tarweed	*Amsinckia intermedia*	
Common milkweed	*Asclepias syriaca* L.	Milkweed, silkweed, wild cotton	*Asclepias syriaca*	1894, **1887**[r]
Common motherwort	*Leonurus cardiaca* L.	Motherwort	*Leonurus cardiaca*	1865
Common mullein	*Verbascum thapsus* L.	Mullein, Aaron's rod, black mullein, flannel plant, velvet dock	*Verbascum thapsus*	1865
Common plantain	*Plantago major* L.	Plantain, white man's foot	*Plantago major*	1865
Common sheep sorrel	*Rumex acetosella* L.	Sorrel, field sorrel, horse sorrel, red sorrel, sheep sorrel, sour weed	*Rumex acetosella*	1865, **1886**, 1894, 1897
Common sneezeweed	*Helenium autumnale* L.	Sneeze weed	*Helenium autumnale*	1894, 1897
Common sowthistle	*Sonchus oleraceus* L.	Sow thistle, milk thistle	*Sonchus oleraceus*	**1889**
Common St. Johnswort	*Hypericum perforatum* L.	St. John's wort	*Hypericum perforatum*	1865, **1887**
Common sunflower	*Helianthus annuus* L.	Sunflower	*Helianthus annuus*	
Common Viper's bugloss	*Echium vulgare* L.	Viper's bugloss, blue devil, blue thistle, blue weed	*Echium vulgare*	1865, **1886**, 1894

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

Table 2. (*Continued*)

Common water hyacinth	*Eichhornia crassipes* (Mart.) Solms	Water hyacinth, gamalote	*Eichhornia crassipes*	
Common yarrow	*Achillea millefolium* L.	Milfoil, yarrow	*Achillea millefolium*	1865
Corn gromwell	*Buglossoides arvensis (L.) I.M. Johnst.*	Corn gromwell, field gromwell, pigeon weed, red root, stone seed, wheat thief	*Lithospermum arvense*	1894
Cow soapwort	*Vaccaria hispanica* (Mill.) Rauschert	Cow herb, cockle, cow basil, cow fat, glond	*Saponaria vaccaria*	1894
Cuman ragweed	*Ambrosia psilostachya* DC.	Perennial ragweed	*Ambrosia psilostachya*	
Curlycup gumweed	*Grindelia squarrosa* (Pursh) Dunal	Gum plant, rosinweed, sunflower	*Grindelia squarrosa*	1894
Curly dock	*Rumex crispus* L.	Curled dock, sour dock, yellow dock	*Rumex crispus*	1865, **1889**, 1894
Devil's beggartick	*Bidens frondosa* L.	Beggar ticks, bur marigold, pitchforks, stickweed	*Bidens frondosa*	1865, **1889**
Devil's tongue	*Opuntia humifusa* (Raf.) Raf.	Prickly pear, Indian fig	*Opuntia humifusa*	
Eastern daisy fleabane	*Erigeron annuus* (L.) Pers.	Daisy fleabane, sweet scabious, white top	*Erigeron annuus*	1894
Eastern poison ivy	*Toxicodendron radicans* (L.) Kuntze ssp. *radicans*	Poison ivy, poison oak, poison vine	*Rhus radicans*	1865, 1894, **1896**
Erect spiderling	*Boerhavia erecta* L.	Hogweed	*Bœrhaavia erecta*	1894
European stick-seed	*Lappula squarrosa* (Retz.) Dumort.	Narrow-leafed stick-seed	*Lappula lappula*	1894
Eyebane	*Chamaesyce nutans* (Lag.) Small	Stubble spurge, hypericum spurge	*Euphorbia nutans*	1894
False flax	*Camelina sativa* (L.) Crantz	False flax, gold of pleasure, Siberian oilseed, wild flax	*Camelina sativa*	1865, 1894
Fetid marigold	*Dyssodia papposa* (Vent.) Hitchc.	Fetid marigold, stinkweed	*Dyosodia papposa*[s]	
Field bindweed	*Convolvulus arvensis* L.	Bindweed, bear bind, English bindweed, morningglory	*Convolvulus arvensis*	1865, 1894, 1897
Field clover	*Trifolium campestre* Schreb.	Low hop clover	*Trifolium procumbens*	
Field pennycress	*Thlaspi arvense* L.	Penny cress, French weed, Sargent weed	*Thlaspi arvense*	1894
Field pepperweed	*Lepidium campestre* (L.) W.T. Aiton	Field peppergrass, English peppergrass, Mithridate mustard, yellowseed	*Lepidium campestre*	
Field sowthistle	*Sonchus arvensis* L.	Perennial sow thistle, field sow thistle, sow thistle	*Sonchus arvensis*	1894
Flatspine bur ragweed	*Ambrosia acanthicarpa* Hook.	Bur ragweed, rosetilla	*Gærtneria acanthicarpa*	
Flowering spurge	*Euphorbia corollata* L.	Showy spurge, flowering spurge	*Euphorbia corollata*	
Flower of an hour	*Hibiscus trionum* L.	Bladder ketmia, flower-of-an-hour, good-night-at-noon	*Hibiscus trionum*	
Foxtail barley	*Hordeum jubatum* L.	Squirrel tail, foxtail, wild barley	*Hordeum jubatum*	1894
Fuller's teasel	*Dipsacus fullonum* L.	Teasel, barber's brushes, English thistle, Fuller's card, Indian thistle, water thistle	*Dipsacus sylvestris*	1865, 1894
Garden cornflower	*Centaurea cyanus* L.	Cornflower, bachelor's button, bluebottle, French pink	*Centaurea cyanus*	1865
Great ragweed	*Ambrosia trifida* L.	Giant ragweed, hogweed, horseweed, tall ragweed	*Ambrosia trifida*	1865, **1890**, 1894, **1898**
Greater burdock	*Arctium lappa* L.	Burdock, beggar's buttons, gobo, great dock	*Arctium lappa*	1865[t], **1886**, 1894, 1897
Green bristlegrass	*Setaria viridis* (L.) P. Beauv.	Green pigeon grass, bottle grass, green foxtail	*Setaria viridis*	1865[u], **1888**
Green carpetweed	*Mollugo verticillata* L.	Carpet weed, Indian chickweed	*Mollugo verticillata*	
Gypsyflower	*Cynoglossum officinale* L.	Hound's-tongue, dog bur, wool mat	*Cynoglossum officinale*	
Hairy crabgrass	*Digitaria sanguinalis* (L.) Scop.	Crabgrass, finger grass, Polish millet	*Panicum sanguinale*	1865, 1894
Heartwing sorrel	*Rumex hastatulus* Baldw.	Drop-seed dock, sorrel dock	*Rumex hastatulus*	
Hedge false bindweed	*Calystegia sepium* (L.) R. Br. ssp. *sepium*	Hedge bindweed, bracted bindweed, devil's vine, Rutland beauty, wild morning-glory	*Convolvulus sepium*	**1889**, 1894
Hedgemustard	*Sisymbrium officinale* (L.) Scop.	Hedge mustard	*Sisymbrium officinale*	
Hemp broomrape	*Orobanche ramosa* L.	Branched broom rape, broom rape	*Orobanche ramosa*	**1891**
Henbit deadnettle	*Lamium amplexicaule* L.	Hen bit, dead nettle	*Lamium amplexicaule*	1865

(*Continued*)

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

Table 2. (*Continued*)

Current common name	Current scientific name	Common names	Scientific name published	Listed in other reports/yearbooks
Indian goosegrass	*Eleusine indica* (L.) Gaertn.	Yard grass, dog's tail, crab grass, wire grass	*Eleusine indica*	
Indian-tobacco	*Lobelia inflata* L.	Indian tobacco, asthma weed	*Lobelia inflata*	1865, **1884**
Jimsonweed	*Datura stramonium* L.	Jimson weed, Jamestown weed, purple thorn apple	*Datura tatula*	1865[v], **1889**, 1894
Johnsongrass	*Sorghum halepense* Pers.	Johnson grass, Australian millet, Cuba grass, evergreen millet, Means grass	*Andropogon halepensis*	1894, 1897
Killdevil	*Hieracium praealtum* Vill. ex Gochnat	Devil weed, golden hawkweed, king devil, paint brush	*Hieracium prœaltum*	1894
Lambsquarters	*Chenopodium album* L.	Lamb's quarters, goosefoot, pigweed	*Chenopodium album*	1865, **1886**, 1894
Largebracted plantain	*Plantago aristata* Michx	Bracted plantain, Western plantain	*Plantago aristata*	1894
Little hogweed	*Portulaca oleracea* L.	Purslane, garden purslane, parsley, pusley	*Portulaca oleracea*	**1887**, 1894
Little larkspur	*Delphinium bicolor* Nutt.	Poison weed	*Delphinium bicolor*	
Longroot smartweed	*Persicaria amphibia* (L.) Delarbre (WFO 2024) =*Polygonum amphibium* L. var. *emersum* Michx.	Water smartweed	*Polygonum emersum*	
Low mallow	*Malva pusilla* Sm. (WFO 2023)	Round-leafed mallow, cheeses, mallard	*Malva rotundifolia*	
Maltese star-thistle	*Centaurea melitensis* L.	Napa thistle, Malta thistle, tocalote	*Centaurea melitensis*	
Mat amaranth	*Amaranthus blitoides* S. Watson	Low amaranth, prostrate amaranth, spreading amaranth	*Amaranthus blitoides*	
Mexican pricklypoppy	*Argemone mexicana* L.	Mexican poppy, devil's fig, prickly poppy, thistle poppy, yellow poppy	*Argemone mexicana*	
Mexican tea	*Dysphania ambrosioides* (L.) Mosyakin & Clemants	Mexican tea, American wormseed	*Chenopodium ambrosioides*	1894
Missouri gourd	*Cucurbita foetidissima* Kunth (WFO 2024)	Wild gourd, calabazita	*Cucurbita perennis*	1894
Moth mullein	*Verbascum blattaria* L.	Moth mullein	*Verbascum blattaria*	1865[w], 1894
Mouse barley	*Hordeum murinum* L.	Mouse barley, wall barley, wild barley	*Hordeum murinum*	
Mouseear cress	*Arabidopsis thaliana* (L.) Heynh.	Mouse ear cress	*Stenophragma thaliana*	
Musky stork's bill	*Erodium moschatum* (L.) L'Hér. ex Aiton	Musky alfilerilla, ground needle, musky heronbill	*Erodium moschatum*	1894
Narrowleaf plantain	*Plantago lanceolata* L.	Rib grass, black plantain, buck horn, buck, plantain, deer tongue, English plantain, lance-leafed plantain, ripple grass	*Plantago lanceolata*	1865, **1890**, 1894, 1897
Narrowleaf vervain	*Verbena simplex* Lehm.	Narrow leafed vervain, low vervain	*Verbena angustifolia*	
Neckweed	*Veronica peregrina* L.	Neckweed, purslane, speedwell	*Veronica peregrina*	
New York ironweed	*Vernonia noveboracensis* (L.) Michx.	Ironweed	*Vernonia noveboracensis*	1865
Norwegian cinquefoil	*Potentilla norvegica* L. ssp. *monspeliensis* (L.) Asch. & Graebn.	Five finger, Norway cinquefoil	*Potentilla monspeliensis*	1865
Nutgrass	*Cyperus rotundus* L.	Nut grass, coco, coco sedge, nut sedge	*Cyperus rotundus*	1865[x], **1887**[y], 1894, 1897
Orange hawkweed	*Hieracium aurantiacum* L.	Orange hawkweed, devil's paint brush, golden hawkweed, ladies paint brush	*Hieracium aurantiacum*	**1890**, 1894
Oxeye daisy	*Leucanthemum vulgare* Lam.	Oxeye daisy, bull's eye, sheriff pink, white weed	*Chrysanthemum leucanthemum*	1865[z], **1886**, 1894, 1897
Paraguayan starbur	*Acanthospermum australe* (Loefl.) Kuntze	Paraguay bur	*Acanthospermum brasilum*	1894[aa]

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

Table 2. (*Continued*)

Partridge pea	*Chamaecrista fasciculata* (Michx.) Greene var. *fasciculata*	Partridge pea	*Cassia chamæcrista*	
Poorjoe	*Diodia teres* Walter	Button weed, compass weed, poor weed	*Diodia teres*	1894
Porcupineweed	*Hesperostipa spartea* (Trin.) Barkworth	Porcupine grass, needle grass	*Stipa spartea*	
Povertyweed	*Iva axillaris* Pursh	Poverty weed	*Iva axillaris*	1894
Prairie fleabane	*Erigeron strigosus* Muhl. ex Willd. var. *strigosus*	Rough-stemmed fleabane	*Erigeron ramosus*	1865
Prickly fanpetals	*Sida spinosa* L.	Spiny sida	*Sida spinosa*	
Prickly lettuce	*Lactuca serriola* L.	Prickly lettuce, compass weed, milkweed, wild lettuce	*Lactuca scariola*	1894, 1897
Prickly Russian thistle	*Salsola tragus* L.	Russian thistle, Russian cactus, Russian saltwort, Russian tumbleweed	*Salsola kali tragus*	**1891, 1892**, 1894, 1897[bb]
Prostrate knotweed	*Polygonum aviculare* L. var. *vegetum* Ledeb.	Knot grass, doorweed, goose grass	*Polygonum aviculare*	
Prostrate pigweed	*Amaranthus albus* L.	Tumbleweed, white pigweed	*Amaranthus albus*	1865, 1894
Purple passionflower	*Passiflora incarnata* L.	Passion flower, may pop	*Passiflora incarnata*	1894
Purple poppymallow	*Callirhoe involucrata* (Torr. & A. Gray) A. Gray	Callirrhoe, poppy mallow	*Callirrhoe involucrata*[cc]	
Purplestem beggarticks	*Bidens connata* Muhl. ex Willd.	Swamp beggar ticks, marigold	*Bidens connata*	
Poorjoe	*Diodia teres* Walter	Button weed, compass weed, poor weed	*Diodia teres*	1894
Poverty oatgrass	*Danthonia spicata* (L.) P. Beauv. ex Roem. & Schult.	Whitetop, June grass, old fog, wild-cat grass	*Danthonia spicata*	
Quackgrass	*Elymus repens* (L.) *Gould*	Couch grass, devil's grass, Durfee grass, quack grass, quick grass, witch grass	*Agropyron repens*	1865[dd], 1894
Queen Anne's lace	*Daucus carota* L.	Wild carrot, bird's nest, devil's plague, Queen Anne's lace	*Daucus carota*	1865, **1887**, 1894, 1897
Rabbitfoot clover	*Trifolium arvense* L.	Rabbit's-foot clover, stone clover	*Trifolium arvense*	1865
Red brome	*Bromus rubens* L.	Red chess	*Bromus rubens*	
Redroot pigweed	*Amaranthus retroflexus* L.	Pigweed, redroot, rough amaranth	*Amaranthus retroflexus*	1894
Red star-thistle	*Centaurea calcitrapa* L.	Star thistle	*Centaurea calcitrapa*	
Redwhisker clammyweed	*Polanisia dodecandra* (L.) DC. ssp. *dodecandra*	Polanisia	*Polanisia graveolens*	
Rough cocklebur	*Xanthium strumarium* L.	Small cocklebur, ditch bur, small burdock	*Xanthium strumarium*	1865, 1894
Rush skeletonplant	*Lygodesmia juncea* (Pursh) D. Don ex Hook.	Skeleton weed, gum weed, lygodesmia	*Lygodesmia juncea*	**1888**
Rush skeletonweed	*Chondrilla juncea* L.	Chondrilla, devil's greens, gum succory, hog bite, skeleton weed	*Chondrilla juncea*	**1887**, 1894
Rye brome	*Bromus secalinus* L.	Chess, cheat, wheat thief, Willard's brome grass	*Bromus secalinus*	1865, 1894
Sanddune sandbur	*Cenchrus tribuloides* L.	Bur grass, bear grass, hedgehog, Rocky Mountain sandbur, sand bur, sandspur	*Cenchrus tribuloides*	1865, **1890**, 1894, 1897
Scarlet pimpernel	*Anagallis arvensis* L.	Pimpernel, poison chickweed, poor man's weather glass	*Anagallis arvensis*	
Shepherd's purse	*Capsella bursa-pastoris* (L.) Medik.	Sheperd's purse, mother's heart, pickpurse, toothwart	*Bursa bursa-pastoris*	1865, **1886**, 1894
Silver cinquefoil	*Potentilla argentea* L.	Silvery cinquefoil	*Potentilla argentea*	
Silverleaf nightshade	*Solanum elaeagnifolium* Cav.	Bull nettle, horse nettle, blue top, trompillo	*Solanum elæagnifolium*	
Skeletonleaf bur ragweed	*Ambrosia tomentosa* Nutt.	Creeping bur ragweed, franseria	*Gærtneria discolor*	1894

(*Continued*)

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

Table 2. (*Continued*)

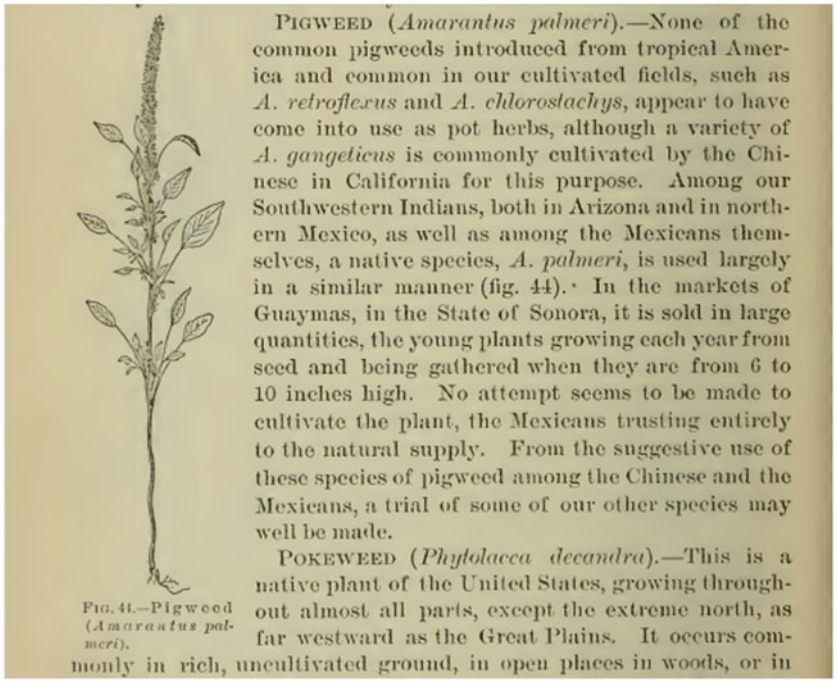
Current common name	Current scientific name	Common names	Scientific name published	Listed in other reports/yearbooks
Skunkbush	*Navarretia squarrosa* (Eschsch.) Hook. & Arn.	Skunkweed, pepper weed	*Navarretia squarrosa*	
Slim amaranth	*Amaranthus hybridus* L.	Carelessweed, pigweed	*Amaranthus hybridus*	1865, **1887**
Small geranium	*Geranium pusillum* L.	Small-flowered geranium	*Geranium pusillum*	
Smooth blackberry	*Rubus canadensis* L.	Running brier, dewberry, low blackberry	*Rubus canadensis*	1865, 1894
Sneezeweed	*Helenium amarum* (Raf.) H. Rock var. *amarum*	Yellow dog fennel, fennel	*Helenium tenuifolium*	1894, **1898**
Southern sandbur	*Cenchrus echinatus* L.	West India bur grass, cockspur, sandspur	*Cenchrus echinatus*	
Spiny amaranth	*Amaranthus spinosus* L.	Spiny amaranth, prickly calula, red careless weed, spiny careless weed, thorny amaranth	*Amaranthus spinosus*	1865, **1889**, 1894
Spiny cocklebur	*Xanthium spinosum* L.	Spiny cocklebur, Bathurst bur, Chinese thistle, dagger cocklebur	*Xanthium spinosum*	1865, 1894
Spotted sandmat	*Chamaesyce maculata* (L.) Small	Milk purslane, spotted spurge	*Euphorbia maculata*	1865[ee]
Spotted waterhemlock	*Cicuta maculata* L.	Spotted cowbane, beaver poison, musquash poison, water hemlock	*Cicuta maculata*	1865, **1884, 1896**
Stinkgrass	*Eragrostis cilianensis* (All.) Vign. ex Janchen	Stinking grass, pungent meadow grass	*Eragrostis major*	
Stinking chamomile	*Anthemis cotula L.*	Dog fennel, mayweed, stinking chamomile	*Anthemis cotula*	1865[ff], **1889**, 1894, 1897
Swamp verbena	*Verbena hastata* L.	Blue vervain, simpler's joy	*Verbena hastata*	
Sweetclover	*Melilotus officinalis* (L.) Lam.	Sweet clover, bokhara clover, white melilot	*Melilotus alba*	
Sweetscented joe pye weed	*Eutrochium purpureum* (L.) E.E. Lamont	Joe-pye weed, trumpetweed	*Eupatorium purpureum*	1865
Sword groundcherry	*Physalis lanceolata* Michx.	Ground cherry, lance-leafed ground cherry	*Physalis lanceolata*	
Tall buttercup	*Ranunculus acris* L.	Tall buttercup, acrid buttercup	*Ranunculus acris*	1865, **1886**
Tall morning-glory	*Ipomoea purpurea* (L.) Roth	Morning-glory	*Ipomœa purpurea*	1894
Tall thistle	*Cirsium altissimum* (L.) Hill	Tall thistle	*Carduus altissimus*	
Threadleaf snakeweed	*Gutierrezia microcephala* (DC.) A. Gray	Broom weed, flaxweed	*Gutierrezia sarothræ*	
Velvetleaf	*Abutilon theophrasti* Medik.	Indian mallow, American jute, butter print, stamp weed, velvetleaf	*Abutilon abutilon*	1865, **1886**[gg], 1894[gg]
Velvetweed	*Oenothera curtiflora* W.L. Wagner & Hoch	Velvety gaura, small-flowered gaura	*Gaura parviflora*	
Virginia pepperweed	*Lepidium virginicum* L.	Peppergrass	*Lepidium virginicum*	
Virginia threeseed mercury	*Acalypha virginica* L.	Three-seeded mercury, copper leaf	*Acalypha virginica*	
Western brackenfern	*Pteridium aquilinum* (L.) Kuhn (WFO 2024)	Eagle fern, bracken, brake	*Pteris aquilina*	1894
White heath aster	*Symphyotrichum ericoides* (L.) G.L. Nesom var. *ericoides*	Steel weed, aster	*Aster ericoides*	1865
White mustard	*Sinapis alba* L.	White mustard	*Sinapis alba*	
White vervain	*Verbena urticifolia* L.	White vervain, nettle-leafed vervain	*Verbena urticifolia*	
Wild garlic	*Allium vineale* L.	Wild onion, crow garlic, field garlic, wild garlic	*Allium vineale*	1865, 1894, 1897
Wild oat	*Avena fatua* L.	Wild oats	*Avena fatua*	1894
Wild parsnip	*Pastinaca sativa* L.	Wild parsnip, queen weed	*Pastinaca sativa*	1894
Winged pigweed	*Cycloloma atriplicifolium* (Spreng.) J.M. Coult.	Winged pigweed, Cycloloma, sand-hill tumbleweed	*Cycloloma atriplicifolia*	

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

Table 2. (*Continued*)

Witch's moneybags	*Hylotelephium telephium* (L.) H. Ohba ssp. *telephium*	Live-forever, Aaron's rod, garden orpine	*Sedum telephium*	1894
Woman's tobacco	*Antennaria plantaginifolia* (L.) Richardson	Plantain-leafed everlasting, Indian tobacco, lamb's tail, mouse ear	*Antennaria plantaginifolia*	
Woolly locoweed	*Astragalus mollissimus* Torr.	Loco weed	*Astragalus mollissimus*	
Yellow foxtail	*Setaria pumila* (Poir.) Roem. & Schult. ssp. *pumila*	Pigeon grass, pussy grass, summer foxtail	*Setaria glauca*	1865[hh], 1894, 1897[ii]
Yellow nutsedge	*Cyperus esculentus* Muhl. (WFO 2024)	Galingale, sedge	*Cyperus phymatodes*	1865
Yellow star-thistle	*Centaurea solstitialis* L.	St. Barnaby's thistle, Barnabas, prickly tarweed, yellow-flowered centaury	*Centaurea solstitialis*	
Yerba mansa	*Anemopsis californica* (Nutt.) Hook. & Arn.	Yerba mansa	*Anemopsis californica*	1894

[a]Darlington spelled genus as *Erechthites.*
[b]Darlington listed as *Cynodon dactylon* (Pers.).
[c]Darlington listed as *Cirsium lanceolatum* (Scop.).
[d]Darlington listed as *Linaria vulgaris* (Mill.).
[e]Listed as *Linaria vulgaris*.
[f]Darlington listed as *Urtica dioica* (L.).
[g]Darlington listed as *Xanthium strumarium* (L.).
[h]Darlington spelled specific epithet *arvense.*
[i]Listed as *Cnicus arvensis* (=*Cirsium arvense* (L.) Scop. [WFO 2023]).
[j]Spelled *Erigeron canadensis.*
[k]Possible typographical misspelling of specific epithet *curvi.*
[l]Possible typographical spelling of specific epithet *xanthifolia.*
[m]Possible typographical error spelling *Legousia*.
[n]Listed as *Cuscuta trifolii* (=*Cuscuta epithymum* subsp. *Epithymum* [WFO 2023]).
[n]Listed as *Cuscuta trifolii* (=*Cuscuta epithymum* subsp. *Epithymum* [WFO 2023]).
[o]Listed as *Lychnis githago* (=*Agrostemma githago* L. [WFO 2023]).
[p]No current scientific name exists for *Taraxacum taraxacum*.
[q]Darlington listed as *Taraxacum dens-leonis* (Desf.).
[r]Labeled in image as *Ascelpias cornuti* (=*Asclepias syriaca* L. [WFO 2023]).
[s]Possible misspelling of genus *Dyssodia*.
[t]Darlington listed as *Lappa major* (Gaertn).
[u]Spelled *Sitaria viridis* (Beauv.).
[v]Darlington listed as *Datura stramonium* L.
[w]Darlington listed as *Verbascum blattavia* (L.).
[x]Darlington listed as *Cyperus hydra* (Mx.).
[y]Written as *Cyperus rotundus* var. *hydra.*
[z]Darlington listed as *Leucanthemum vulgare* (Lam.).
[aa]Written as *Acanthospermum xanthioides* (=*Acanthospermum australe* (Loefl.) Kuntze).
[bb]Listed as Salsoa *tragus*.
[cc]Possible typographical misspelling of *Callirhoe.*
[dd]Darlington listed as *Triticum repens* (L.).
[ee]Darlington listed as *Euphorbia maculate* (L.).
[ff]Darlington listed as *Maruta cotula* (D.C.).
[gg]Scientific name written *Abutilon avicennœ*.
[hh]Spelled *Sitaria glauca* (Beauv.).
[ii]Listed as *Chaetochloa glauca* (=*Setaria pumila* (Poir.) Roem. & Schult. ssp. *pumila* [NRCS 2023]).

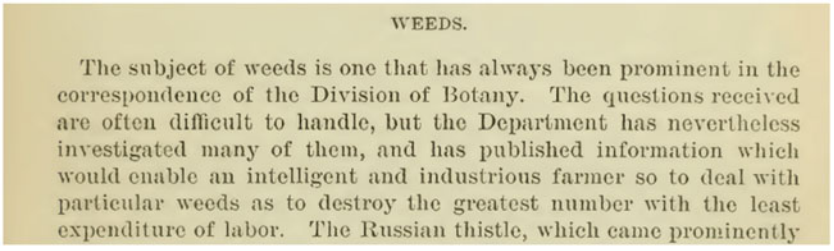


PIGWEED (*Amarantus palmeri*).—None of the common pigweeds introduced from tropical America and common in our cultivated fields, such as *A. retroflexus* and *A. chlorostachys*, appear to have come into use as pot herbs, although a variety of *A. gangeticus* is commonly cultivated by the Chinese in California for this purpose. Among our Southwestern Indians, both in Arizona and in northern Mexico, as well as among the Mexicans themselves, a native species, *A. palmeri*, is used largely in a similar manner (fig. 44). In the markets of Guaymas, in the State of Sonora, it is sold in large quantities, the young plants growing each year from seed and being gathered when they are from 6 to 10 inches high. No attempt seems to be made to cultivate the plant, the Mexicans trusting entirely to the natural supply. From the suggestive use of these species of pigweed among the Chinese and the Mexicans, a trial of some of our other species may well be made.

POKEWEED (*Phytolacca decandra*).—This is a native plant of the United States, growing throughout almost all parts, except the extreme north, as far westward as the Great Plains. It occurs commonly in rich, uncultivated ground, in open places in woods, or in

FIG. 44.—Pigweed (*Amarantus palmeri*).

Figure 3. Screenshot of carelessweed from Coville (1896).



WEEDS.

The subject of weeds is one that has always been prominent in the correspondence of the Division of Botany. The questions received are often difficult to handle, but the Department has nevertheless investigated many of them, and has published information which would enable an intelligent and industrious farmer so to deal with particular weeds as to destroy the greatest number with the least expenditure of labor. The Russian thistle, which came prominently

Figure 4. Screenshot on the role of USDA's Botany Division to provide weed science information to improve U.S. agriculture from FV Coville (1898).

deficiency, many of which were and are still considered weeds. His suggested list included charlock mustard [*Sinapis arvensis* L. = *Brassica sinapistrum* (WFO 2023)], chicory (*Cichorium intybus* L.), early yellowrocket [*Barbarea verna* (Mill.) Asch. =*Barbarea praecox*], a species of dandelion identified as *Taraxacum taraxacum* (this specific epithet not recognized by plant taxonomists), bitter dock (*Rumex obtusifolius* L.), curly dock (*Rumex crispus* L.), patience dock (*Rumex patientia* L.), amamastla (*Rumex chrysocarpus* Moris), lambsquarters (*Chenopodium album* L.), water arum (*Calla palustris* L.; *Calla* misspelled as Callha in article), black mustard [*Brassica nigra* (L.) W.D.J. Kock.], New Zealand spinach [*Tetragonia tetragonioides* (Pall.) Kuntze = *Tetragonia expansa*], miner's lettuce (*Claytonia perfoliata* Donn ex Willd.), little hogweed (*Portulaca oleracea* L.), American pokeweed (*Phytolacca americana* L. var. *americana* = *Phytolacca decandra*), Joseph's-coat (*Amaranthus tricolor* L. = *Amaranthus gangeticus*), slim amaranth (*Amaranthus hybridus* L. = *Amaranthus chlorostachys*), redroot pigweed (*Amaranthus retroflexus* L.), and carelessweed (*Amaranthus palmeri* S. Watson). The accompanying line drawing of carelessweed is shown in Figure 3, which also shows an obvious error in the spelling of *Amaranthus* as *Amarantus*. In addition, he stated that the native peoples of Arizona and northern Mexico did not cultivate carelessweed, as naturally recurring populations were sufficiently abundant to be collected and sold in Guaymas markets of Sonora in great quantities (Coville 1896).

Two articles relevant to weed science appeared in the *Yearbook* for 1896. The first was titled "*Some Common Poisonous Plants*" (Chesnut 1897) authored by Assistant Botanist VK Chestnut. Chesnut (1897) described several species of flowering plants associated with toxicity to humans, livestock, or wildlife. He stated that eastern poison ivy [*Toxicodendron radicans* (L.) Kuntze ssp. *radicans* = *Rhus radicans*] was the principal toxic plant in North America. Other toxic plants in the genus *Toxicodendron* he described in the article were Pacific poison oak [*Toxicodendron diversilobum* (Torr. & A. Gray) Greene = *Rhus diversiloba*], poison sumac [*Toxicodendron vernix* (L.) Kuntze = *Rhus vernix*], and false poison sumac (*Rhus michauxii* Sarg.). Illustrations of the first three species were included in the article. Chesnut also shared the recent discovery of toxicodendrol by Harvard Professor Franz Pfaff as the compound that caused toxicity. Finally, he included instructions to wash skin affected by these toxic plants with a solution of powdered sugar of lead dissolved in weak alcohol to relieve irritation. No citation to the discovery of toxicodendrol was provided.

Chesnut labeled spotted water hemlock[3] (*Cicuta maculata* L.) as the most virulent plant in North America. He briefly mentioned

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

the U.S. distribution of three additional species of *Cicuta*: bulblet-bearing water hemlock (*Cicuta bulbifera* L.), western water hemlock (*Cicuta douglasii* J.M.Coult. & Rose = *Cicuta vagans*), and spotted water hemlock [*Cicuta maculata* L. var. *bolanderi* (S. Watson) G. Mulligan = *Cicuta bolanderi*] and related incidences of deaths caused by these plants. He also mentioned the less virulent poison hemlock (*Conium maculatum* L.) as well as Mackenzie's water hemlock (*Cicuta virosa* L.), a European species not found in the United States at the time or now, but widely distributed in Canada (USDA NRCS 2024).

The second article in the *Yearbook* for 1896, titled "*Migration of Weeds*" (Dewey 1897), focused on ways weeds move across the North American landscape. He described movement as natural or artificial. Natural mechanisms described included runners, root-stock, running rootstocks, seed throwing, flying seed, drifting on snow-covered or frozen soil, tumbling, floating in water, or animal dispersal, with examples of weeds that use these forms of movement. It is no surprise that all weeds that move artificially all involve some form of human assistance, whether it be on machinery, in or on nursery stock, contaminants of packing materials, hay, or crop seed, intentionally introduced as ornamentals or other uses, such as medical, human or domestic animal feed, and finally, special avenues, which could otherwise be summarized as transportation corridors such as roads, rail, and port, but animal paths were also mentioned. Dewey's article also included text on directions of movement in the United States and cited state botanical works that documented the immigration of many weeds from Europe into North America. His article contained numerous illustrations to highlight morphological adaptions that many weed seeds possess to facilitate movement, as well as several species distribution maps across the United States, and illustrations of a few plants mentioned in the article. Not all, but many of the weed examples given in the article are listed only by common names of the era, with no scientific name; therefore, they are not repeated in this article.

In the "*Report of the Botanist*" printed in the *Yearbook* for 1897, Coville (1898) again highlighted the number of inquiries sent to the Division related to weeds (Figure 4). In that paragraph, he also emphasized contributions his division made toward weed management (therefore to weed science) to improve the economy of agriculture since USDA hired a botanist. Coville also wrote about collaborations with the Division of Chemistry to fill gaps in knowledge relevant to poisonous plants detrimental to livestock and humans, especially children. Finally, a list titled "*Twenty-Five Most Harmful Weeds*" in U.S. agriculture was printed following the same format as the ones that appeared in *Yearbooks* of 1894 and 1895 with common names, site of origin and distribution in the United States, time of flower production, time of seed production, growth habit, life cycle, habitats invaded, and method of eradication (Anonymous 1898). Also, as in prior "worst weed" lists, control focused on mechanical methods, cover crops, and prevention of seeding, along with recommendations for application of salt followed by pasturing sheep, treatment with coal oil, kerosene, carbolic acid, or hot brine. The author of this shortened list of most harmful weeds was not stated, but these weeds were described as "well established", "widely distributed" across the United States, and "practically impossible to exterminate."

One article of relevance to weed science in the *Yearbook* of 1898 was titled "*Birds as Weed Destroyers*" (Judd 1899). Judd stated there were over 60 species of weeds (listed alphabetically by current common name in Table 3) whose seeds were routinely consumed by various species of birds found across the United States. This conclusion was based on seed found in crops of birds examined or observations of various birds feeding. Judd referred to, but failed to cite specifically, research done by USDA Ornithologist FEL Beal, who estimated that in Iowa alone, populations of the American tree sparrow [*Spizelloides arborea* Wilson = *Spizella monticola* (The World Bird Database 2023a)] consumed and destroyed over 875 tons of weed seed annually. In addition to a variety of other birds, Judd specifically mentioned the American goldfinch [*Spinus tristis* L. = *Astragalinus tristis* (The World Bird Database 2023b)], because those birds consumed seeds of plants in the Asteraceae (= Compositae) family. He made this connection, because Asteraceae contained many plants considered problematic weeds and because the seeds of those plants were ignored by many other birds. He ended the article by pointing out the value birds contribute to weed control, because their seed consumption was largely ignored by the agricultural community.

The second article in the *Yearbook* of 1898 was titled "*Weeds in Cities and Towns*" (Dewey 1899). Although Dewey provided

Table 3. Weeds that produce seeds routinely consumed by birds across the United States based on observations of feeding and examination of crop contents from Judd (1899)

Common name	Scientific name
Annual ragweed	*Ambrosia artemisiifolia* L. = *Ambrosia artemisiæfolia*
Asters	*Aster* spp.
Black bindweed	*Polygonum convolvulus* L.
Black mustard	*Brassica nigra* (L.) W.D.J. Kock.
Blackeyed Susan	*Rudbeckia hirta* L.
Blanketflowers	*Gaillardia* spp.
Bull thistle[a]	*Cirsium vulgare* (Savi) Ten. = *Carduus lanceolatus*
Common boneset	*Eupatorium perfoliatum* L.
Common chickweed	*Stellaria media* (L.) Vill. ssp. *media* =*Alsine media*
Common mullein	*Verbascum Thapsus*
Common sheep sorrel	*Rumex acetosella* L.
Common sowthistle	*Sonchus oleraceus* L.
Common yellow oxalis	*Oxalis stricta* L.
Curlytop knotweed	*Polygonum lapathifolium* L.
Dandelion	*Taraxacum taraxacum*[b]
Dove weed	*Croton setigerus* Hook. = *Eremocarpus setigerus*
Elephantsfoot	*Elephantopus* spp.
Goldenrod	*Solidago* spp.
Gray birch	*Betula populifolia* Marshall
Green foxtail	*Setaria viridis* (L.) P. Beauv. var. *viridis* = *Chætoclea viridis*
Gromwell[c]	*Lithospermum* spp.
Hairy crabgrass	*Digitaria sanguinalis* (L.) Scop. =*Panicum sanguinale*
Indian goosegrass	*Eleusine indica* (L.) Gaertn.
Lambsquarters	*Chenopodium album* L.
Little hogweed	*Portulaca oleracea* L.
Narrowleaf plantain	*Plantago lanceolata* L.
Nightshade	*Solanum* spp.
Poorjoe	*Diodia teres* Walter
Prickly lettuce	*Lactuca serriola* L. = *Lactuca scariola*
Prostrate knotweed	*Polygonum aviculare* L.
Redroot pigweed[a]	*Amaranthus retroflexus* L.
Scotch cottonthistle	*Onopordum*[d] *acanthium* L.
Sedges	Cyperaceae
Sunflowers	*Helianthus* spp.
Tall blue lettuce	*Lactuca biennis* (Moench) Fernald = *Lactuca spicata*
Yellow foxtail	*Setaria pumila* (Poir.) Roem & Schult. ssp. *pumila* = *Chæoclea glauca*

[a]And other species.
[b]No current scientific name exists for *Taraxacum taraxacum*.
[c]Listed as gromwell (*Lithospermum* sp.), which could be corn gromwell (*Buglossoides arvensis* (L.) I.M. Johnst. or other species of *Lithospermum*.
[d]Possible typographical spelling error of *Onopordum* as *Onopordon*.

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press

examples of far too many weed species frequently seen in cities and towns to list, his focus was to provide an overview of the migratory weeds that appeared on vacant property not occupied with buildings or another planned purpose. He gave examples of weedy plants that occurred on vacant property in cities such as Washington, DC, Boston, Chicago, Denver, San Jose, Atlanta, Augusta, Auburn, and Mobile. Dewey concluded that those weeds most frequently seen in these habitats within eastern cities and Pacific coast cities of the United States originated in the Old World, compared to cities within the central United States, where native weeds were primarily found. He mentioned that some benefits of these weed populations in cities were to provide wildlife food and pollinator habitat, wildflowers, oxygen, fall color, and "material for botanical studies" for teachers and students in city schools. Dewey also emphasized potential negative effects of weeds in cities, such as harboring insects and disease organisms, disagreeable odors from certain species, frequent encounters with toxic plants, asthma and hay fever, and decreased land values. He theorized that control of weeds on vacant property in city limits would be most successful if done by city employees, but this suggestion was not likely to have municipal support. He mentioned the success of sheep pastured in parks in Baltimore and New York City, as well as community gardens for unemployed and needy populations in Detroit, Buffalo, Brooklyn, Columbus, and Chicago, with the added benefit of weed control. Drawn images of Canada cocklebur [*Xanthium strumarium* L. var. *canadense* (Mill.) Torr. & A. Gray], great ragweed (*Ambrosia trifida* L.), sneezeweed [*Helenium amarum* (Raf.) H. Rock var. *amarum*], gallant soldier (*Galinsoga parviflora* Cav.), and carelessweed [*Cyclachaena xanthiifolia* (Nutt.) Fresen.] were included in the article (Dewey 1899).

Acknowledgments. This research received no specific grant from any funding agency, commercial or not-for-profit sectors. Scanned electronic copies (pdfs) of yearly reports published by the United States Department of Agriculture has made access to these old documents easier than digging through them in a library cubicle. Archive.org has many of these USDA and other documents accessible online.

References

Anonymous (1852a) Report of the Commissioner of Patents for the Year 1851. Part II. Agriculture. Washington, DC: Robert Armstrong Printer. 792 p

Anonymous (1852b) *Camelina sativa*––a new oil plant. Pages 51–53 *in* Report of the Commissioner of Patents for the Year 1851. Part II. Agriculture. Washington, DC: Robert Armstrong Printer

Anonymous (1863) Report of the Commissioner of Agriculture for the Year 1862. Washington, DC: U.S. Government Printing Office. 632 p

Anonymous (1895) Table of one hundred weeds. Pages 581–586 *in* Yearbook of the United States Department of Agriculture. 1894. Washington, DC: U.S. Government Printing Office

Anonymous (1896) Two hundred weeds: how to know them and how to kill them. Pages 592–611 *in* Yearbook of the United States Department of Agriculture. 1895. Washington, DC: U.S. Government Printing Office

Anonymous (1898) Twenty-five most harmful weeds. Pages 641–644 *in* Yearbook of the United States Department of Agriculture. 1897. Washington, DC: U.S. Government Printing Office

Baker GL, Rasmussen WD, Wiser V, Porter JM (1963) Century of Service. The First 100 Years of the United States Department of Agriculture. Washington, DC: U.S. Government Printing Office

Brady J (1852) On chess in wheat. Pages 650–652 *in* Report of the Commissioner of Patents for the Year 1851. Part II. Agriculture. Washington, DC: Robert Armstrong Printer

Chesnut VK (1897) Some common poisonous plants. Pages 137–146 *in* Yearbook of the United States Department of Agriculture. 1896. Washington, DC: U.S. Government Printing Office

Coville FV (1890) Noxious weeds. Pages 388–392 *in* Report of the Secretary of the Agriculture. 1890. Washington, DC: U.S. Government Printing Office

Coville FV (1894) Report of the Botanist. Pages 235–245 *in* Report of the Secretary of Agriculture. 1893. Washington, DC: U.S. Government Printing Office

Coville FV (1896) Some additions to our vegetable dietary. Pages 205–214 *in* Yearbook of the United States Department of Agriculture. 1895. Washington, DC: U.S. Government Printing Office

Coville FV (1898) Report of the Botanist. Pages 90–99 *in* Yearbook of the United States Department of Agriculture. 1897. Washington, DC: U.S. Government Printing Office

Coville VK (1889) Noxious weeds. Pages 382–387 *in* First Report of the Secretary of Agriculture. 1889. Washington, DC: U.S. Government Printing Office

Dall WH (1869) Report upon the agricultural resources of Alaska. Pages 170–189 *in* Report of the Commissioner of Agriculture for the Year 1868. Washington, DC: U.S. Government Printing Office

Darlington W (1847) Agricultural Botany: An Enumeration and Description of Useful Plants and Weeds, Which Merit the Notice or Require the Attention, of American Agriculturalists. Philadelphia: JW Moore. 270 p

Darlington W (1866) Weeds of American Agriculture. Pages 509–519 *in* Report of the Commissioner of Agriculture for the Year 1865. Washington, DC: U.S. Government Printing Office

Darlington W, Thurber G (1859) American Weeds and Useful Plants: Being a Second and Illustrated Edition of Agricultural Botany: An Enumeration and Description of Useful Plants and Weeds, Which Merit the Notice or Require the Attention of American Agriculturalists. New York: AO Moore. 460 p

Dewey LH (1897) Migration of weeds. Pages 263–286 *in* Yearbook of the United States Department of Agriculture. 1896. Washington, DC: U.S. Government Printing Office

Dewey LH (1899) Weeds in cities and towns. Pages 193–200 *in* Yearbook of the United States Department of Agriculture. 1898. Washington, DC: U.S. Government Printing Office

Elliott S (1824) A Sketch of the Botany of South Carolina and Georgia (two volumes). Charleston, SC: JR Schenck. 1,349 p

Ewbank T (1852) Agricultural bureau. Pages 653–656 *in* Report of the Commissioner of Patents for the Year 1851. Part II. Agriculture. Washington, DC: Robert Armstrong Printer

Franklin B (1772) Letter From Benjamin Franklin to John Bartram. https://founders.archives.gov/documents/Franklin/01-19-02-0213. Accessed: January 7, 2021

Govaerts R, Frodin DG, Radcliffe-Smith A (2000) World Checklist and Bibliography of Euphorbiaceae (and Pandaceae) 1-4:1-1622. The Board of Trustees of the Royal Botanic Gardens Kew [Cited as *Triadica sebifera*.]

Goode GB (1897) The Founding of the institution. Pages 25–58 *in* Goode GB (ed), The Smithsonian Institution 1846–1896. The History of Its First Half Century. Washington, DC: The De Vinne Press

Harshberger JW (1899) The Botanists of Philadelphia and Their Work. Philadelphia: TC Davis and Sons

Judd SD (1899) Birds as weed destroyers. Pages 221–232 *in* Yearbook of the United States Department of Agriculture. 1898. Washington, DC: U.S. Government Printing Office

Mirek Z, Piękoś-Mirkowa H, Zając A, Zając M (2020) Vascular plants of Poland: an Annotated Checklist. Krakow, Poland: W Szafer Institute of Botany Polish Academy of Sciences. 256 p

Newton I (1863) Report of the Commissioner of Agriculture. Pages 3–17 *in* Report of the Commissioner of the United States Department of Agriculture for the Year 1862. Washington, DC: U.S. Government Printing Office

Parry CC (1870) Report of the Botanist. Pages 91–96 *in* Report of the Commissioner of Agriculture for the Year 1869. Washington, DC: U. S. Government Printing Office

Plants of the World Online (2023) *Cucurbita foetidissima* Kunth Cucurbita perennis (E.James) A.Gray | Plants of the World Online | Kew Science. https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:1136005-2. Accessed: May 25, 2024

Poore BP (1867) History of the agriculture of the United States. Pages 498–527 *in* Report of the Commissioner of Agriculture for the Year 1866. Washington, DC: U.S. Government Printing Office

Rhees WJ (1880) Article I. James Smithson and His Bequest. Smithsonian Miscellaneous Collections (Vol. 21, No. 330 P 24, p 68). Washington, DC: Smithsonian Institution

Rose JN (1892) Two weeds new to the United States. Pages 355–358 *in* Report of the Secretary of Agriculture. 1891. Washington, DC: U.S. Government Printing Office

Stefferud A (ed) (1963) After a Hundred Years The Yearbook of Agriculture 1962. Washington, DC: U.S. Government Printing Office. 688 p

The World Bird Database (2023a) *Spizelloides arborea* Wilson. https://avibase.bsc-eoc.org/species.jsp?avibaseid=F1E4600E. Accessed: December 6, 2023

The World Bird Database (2023b) *Spinus tristis* L. https://avibase.bsc-eoc.org/species.jsp?lang=EN&avibaseid=C9ABA616B963B563. Accessed: December 6, 2023

True RH (1925) The Early Development of Agricultural Societies in the United States. Agricultural Society History Papers 3:295–303

USDA NRCS (2023) The PLANTS Database. http://plants.usda.gov. Greensboro, NC: National Plant Data Team. Accessed: November 20, 2023

USDA NRCS (2024) The PLANTS Database. http://plants.usda.gov. 01/2024). Greensboro, NC: National Plant Data Team. Accessed January 3, 2024

Vasey G (1874) Report of the Botanist. Pages 159–179 *in* Report of the Commissioner of Agriculture for the Year 1872. Washington, DC: U.S. Government Printing Office

Vasey G (1876) Catalogue of forest-trees of the United States. Centennial Collection. Pages 151–186 *in* Report bof the Commissioner of Agriculture for the Year 1875. Washington, DC: U.S. Government Printing Office

Vasey G (1877) Report of the Botanist. Pages 73–74 *in* Report of the Commissioner of Agriculture of the Operations of the Department for the Year 1876. Washington, DC: U.S. Government Printing Office

Vasey G (1887) Report of the Botanist. Pages 69–93 *in* Report of the Commissioner of Agriculture. 1886. Washington, DC: U.S. Government Printing Office

Vasey G (1888) Report of the Botanist. Pages 301–322 *in* Report of the Commissioner of Agriculture. 1887. Washington, DC: U.S. Government Printing Office

Vasey G (1889a) Report of the Botanist. Pages 305–325 *in* Report of the Commissioner of Agriculture. 1888. Washington, DC: U.S. Government Printing Office

Vasey G (1889b) Report of the Botanist. Pages 377–397 *in* First Report of the Secretary of Agriculture. 1889. Washington, DC: U.S. Government Printing Office

Vasey G (1892) Report of the Botanist. Pages 341–358 *in* Report of the Secretary of Agriculture. 1891. Washington, DC: U.S. Government Printing Office

Vasey G (1893) Report of the Botanist. Pages 201–214 *in* Report of the Secretary of Agriculture. 1892. Washington, DC: U.S. Government Printing Office

Weakley AS, and Southeastern Flora Team (2022) Flora of the southeastern United States. Chapel Hill, NC: University of North Carolina Herbarium, North Carolina Botanical Garden. fsus.ncbg.unc.edu. Accessed: May 26, 2024

[WFO] World Flora Online (2023) Brassica sinapistrum Boiss. https://wfoplantlist.org/taxon/wfo-0000432651-2023-12?matched_id=wfo-00005712&page=1. Accessed: December 06, 2023

[WFO] World Flora Online (2024) *Erigeron canadensis* L. Published on the Internet http://www.worldfloraonline.org/taxon/wfo-0000015917. Accessed: May 7, 2024

[WFO] World Flora Online (2024) *Polygonum emersum* (Michx.) Britton. http://www.worldfloraonline.org/taxon/wfo-0001243068. Accessed: May 7, 2024

[WFO] World Flora Online (2024) *Cucurbita perennis* (E. James) A.Gray. http://www.worldfloraonline.org/taxon/wfo-0000629142. Accessed: May 7, 2024

[WFO] World Flora Online (2024) *Pteris aquilina* L. http://www.worldfloraonline.org/taxon/wfo-0001107792. Accessed: May 7, 2024

[WFO] (2024) Cyperus phymatodes Muhl. http://www.worldfloraonline.org/taxon/wfo-0000379634. Accessed: May 7, 2024

Young SL, Anderson JV, Baerson SR, Bajsa-Hirschel J, Blumenthal DM, Boyd CS, Boyette CD, Brennan EB, Cantrell CL, Chao WS, Chee-Sanford JC, Clements CD, Dray FA, Duke SO, Eason KM, Fletcher RS, Fulcher RM, Gaskin JF, Grewell BJ, Hamerlynck EP, Hoagland RE, Horvath DP, Law EP, Madsen JD, Martin DE, Mattox C, Mirsky SB, Molin WT, Moran PJ, Mueller RC, Nandula VJ, Newingham BA, Pan Z, Porensky LM, Pratt PD, Price AJ, Rector BG, Reddy KN, Sheley RL, Smith L, Smith MC, Snyder KA, Tancos MA, West NM, Wheeler GS, Williams MM, Wolf J, Wonkka CL, Wright AA, Xi J, Ziska L (2023). Agricultural Research Service weed science research: Past, present, and future. Weed Sci 71(4):312–327

https://doi.org/10.1017/wet.2024.37 Published online by Cambridge University Press