

## NOTEWORTHY COLLECTIONS

### ARIZONA

*FUIRENA SIMPLEX* Vahl var. *SIMPLEX* (CYPERACEAE).—Gila Co., Tonto National Forest, Sierra Ancha Wilderness Area. Collected on 22 Sep 1991 along the wilderness boundary, at a spring along Oak Creek, just W of Coon Creek Butte, T5N, R14E, S22, SW1/4 of NW1/4, elev. ca. 1450 m (4800 feet), *Imdorf & Dow 293* (ASU).

*Previous knowledge.* Range of the species extends from southern Kansas and Illinois southward into Texas and New Mexico, and through Mexico, including Baja California, into Nicaragua; in the Caribbean in Cuba, Jamaica, and Puerto Rico (R. Kral, A synopsis of *Fuirena* (CYPERACEAE) for the Americas north of South America, *Sida* 7(4):309–354, 1978).

*Significance.* This collection represents the first report of both the genus and species in Arizona. The Arizona plants are disjunct from the nearest known populations: Baja California (near Ensenada, ca. 550 km to WSW); Eddy Co., New Mexico, and Culberson Co., Texas (both ca. 600 km to ESE); and Sonora (near Bahia San Carlos, ca. 675 km to S).

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*PSILOTUM NUDUM* (L.) Beauv. (PSILOTACEAE).—Pima Co., Rincon Mountains, Chimenaea Canyon, Saguaro National Monument East, ca. 1.25 mi N of Madrona Ranger Station, vicinity of 32°10'04"N, 110°36'52"W, ca. 4120' (1260 m). Eight individuals were found growing in a boulder seam with *Pellaea truncata*, completely shaded by large leaning boulders in a steep canyon bottom with *Vitis arizonica* and *Juglans major*; on the slopes nearby were *Agave schottii*, *Carnegiea gigantea*, *Cercidium microphyllum*, *Fouquieria splendens*. *Shelley McMahon 146, Mark Fishbein, Amy Johnson* (8 May 1994, ARIZ, MO).

*Significance.* Second record for Arizona. Only other record for Arizona, consisting of a single individual (*Kaiser s.n.* (4 Feb 1968, ARIZ)) was found ca. 105 km southwest of the Rincon location in Sycamore Canyon, Pajarito Mountains (Phillips, *Amer. Fern J.* 60:30–32, 1970). The next closest populations are disjunct in northwestern Mexico, the nearest by more than 450 km: near Guaymas, Sonora in Nacapules Canyon (Boutin, *Amer. Fern J.* 61:142–143, 1971), in the Sierra Saguariño of southeastern Sonora (Gentry, *Rio Mayo Plants*, Carnegie Inst. of Wash. Pub. #527, 1942), and in the Barranca del Cobre of southwestern Chihuahua (Knobloch and Correll, *Ferns and Fern Allies of Chihuahua*, Texas Research Foundation, 1962). Elsewhere, *P. nudum* is found in moist woods in the southeast United States and in Asian, African and American tropics and subtropics, making the Sonoran desert populations remarkable.

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## OREGON

*ACORUS CALAMUS* L. (ARACEAE).—Marion Co., Salem, gravel bar in Mill Creek, 7 July 1922, *J. C. Nelson* 4387 (OSC, WS). The specimen at WS is dated 7 June 1922.

*Previous knowledge.* Opinions differ whether this species is irregularly circumboreal, or native only to Eurasia and adventive elsewhere. Throughout much of North America east of the Rocky Mountains. In the Pacific Northwest, reported from Montana, Idaho and eastern Washington (Hitchcock et al., *Vascular Plants of the Pacific Northwest*, Vol 1, 1969), British Columbia (Brayshaw, C. T., *Pondweeds and bur-reeds, and their relatives, of British Columbia*, Occ. Pap. B. C. Provincial Museum 26, 1985) and northern California (McClintock, E. in J. C. Hickman (ed.), *The Jepson Manual, Higher Plants of California*, 1993).

*Significance.* Never reported from Oregon by either Peck (*A Manual of the Higher Plants of Oregon*, 2nd ed., 1961) or Hitchcock et al. (1969). Despite this oversight, it was mapped as occurring in Oregon by Muenscher (*Aquatic Plants of the United States*, 1944). The species apparently has not been collected in Oregon since it was first found in 1922.

*CABOMBA CAROLINIANA* A. Gray (CABOMBACEAE)—Clatsop Co., becoming abundant in several sloughs near Astoria, 13 December 1962, *J. H. Wood* s.n. (OSC). Seen recently but not collected in Cullaby Lake, West Lake and Cullaby Creek, all in coastal Clatsop Co., where it is very abundant.

*Previous knowledge.* Native throughout much of eastern North America, as far west as Illinois, Oklahoma and Texas. Cultivated widely for the aquarium trade, this species has escaped and is becoming naturalized in the Pacific Northwest. Populations seen in Oregon and Washington are robust, reproducing vegetatively, and hardly resemble “waifs” noted by Stone (in Hickman (ed.), 1993).

*Significance.* The 1962 collection at OSC was unknown or overlooked by Hitchcock et al. New to Oregon and Pacific Northwest.

*MIMULUS RINGENS* L. (SCROPHULARIACEAE)—Columbia Co., Columbia River, along slough between railroad and river channel just N of Rinearson Slough, 4 mi NW of Rainier, T7N, R3W, sec. 2, 1 July 1992, *J. A. Christy* 8110 (OSC). Seen or collected in four other localities along the Columbia River between Lord Island, Columbia Co., and Sand Island, Multnomah Co.

*Previous knowledge.* Native throughout much of eastern North America east of the Rocky Mountains. In the Pacific Northwest, reported from Washington (Maxwell, C. L., *Vascular flora of the Willapa Hills and lower Columbia River area of southwestern Washington*, Douglasia Occ. Pap. 4:27–76, Washington Native Plant Soc., 1991) and Idaho (Davis, R. J., *Flora of Idaho*, 1952; Cronquist et al., *Intermountain Flora*, Vol. 4, 1984).

*Significance.* New to Oregon. The species is becoming widespread on mud and sand in the freshwater intertidal zone along the Columbia River below Bonneville Dam, where populations number from one to hundreds of individuals. On the Washington side of the river, populations were seen as far upriver as Cottonwood Island, just above Longview, in Cowlitz County.

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## WASHINGTON

*ACORUS CALAMUS* L. (ARACEAE).—Clark Co., 0.8 km SW of La Center, population ca. 50 feet in diameter, open *Salix lasiandra* bottomland on East Fork of Lewis River, T4N, R1E, sec. 4, 21 October 1992, *J. A. Christy* 8263 (OSC).

*Previous knowledge.* Distribution is given above in report for Oregon. In Washington, reported previously from Spokane Co. by Hitchcock et al. (1969).

*Significance.* First report from western Washington.

*CABOMBA CAROLINIANA* A. Gray (CABOMBACEAE)—Cowlitz Co., Columbia River, submersed in Coal Creek Slough, 9.5 km NW of Longview, T8N, R3W, sec. 15, 19 October 1992, *J. A. Christy* 8261 (OSC). Seen recently but not collected in nearby Solo Slough and Willow Grove Slough, Cowlitz Co.

*Previous knowledge.* Distribution is given above in report for Oregon.

*Significance.* New to Washington.

*MURDANNIA KEISAK* (Hassk.) Hand.-Mazz. (= *ANEILEMA KEISAK* Hassk.) (COMME-LINACEAE).—Wahkiakum Co., Columbia River, Grays Bay, intertidal freshwater marsh just W of Pigeon Bluff, on mud with *Alisma plantago-aquatica* and *Carex lyngbyei*, 4 mi SSW of Rosburg, T9N, R8W, sec. 9, 28 July 1992, *J. A. Christy* 8163 (OSC).

*Previous knowledge.* Native to eastern Asia. Reported from southeastern United States as far west as Arkansas (Gleason, H. A. and A. Cronquist, *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*, 2nd ed., 1991). In the Pacific Northwest, reported from Oregon (Thomas, D. W., *The vascular flora of the Columbia River estuary*, *Wasmann J. Biol.* 42:92–106, 1984).

*Significance.* New to Washington.

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*LASTHENIA MINOR* (DC.) Ornduff (ASTERACEAE).—Skagit Co., Pass Island, Deception Pass, open rocky area ca 30 m east of the parking area near summit, 5 June 1991, *E. Kozloff* s.n. (UC; WTU).

*Previous knowledge.* Otherwise known from scattered localities in California along the coast from Mendocino County to San Luis Obispo County and the Central Valley and adjacent valleys from Amador and Solano counties to Kern and San Luis Obispo counties (Ornduff: *Univ. Calif. Pub. Bot.* 40, 1966; *The Jepson Manual*, 1993).

*Comment.* The Kozloff collection consists of low, depauperate plants with 1–3 small capitula per plant; the population was first observed by him in 1990. We first assumed the specimens were referable to *L. maritima* (A. Gray) M. Vasey because of their insular habitat and the occurrence of that species to the west on islands off the northwestern coast of the Olympic Peninsula and off the west coast of Vancouver Island (Vasey: *Madroño* 32:131–142, 1985). Achenes collected by Kozloff in June, 1992, were sown by Ornduff in a cool greenhouse in early 1993. The resultant plants were randomly cross-pollinated and capitula with nearly mature achenes were removed from six individuals and sent to Vasey for scoring, using the 20 characters he employed to discriminate between *L. minor* and *L. maritima*. In 11 of these characters (including ligule length, number of awns, number of pappus scale divisions, ratio of ligule to phyllary length, and number of achene hairs) the plants match *L. minor*; these are generally the “best” morphological characters for distinguishing between the two species as suggested by the t-values in Table 3 of Vasey’s 1985 paper. In two characters (scale length, scale/awn length) the plants resemble *L. maritima*; and in seven characters (including phyllary length, achene length, awn length) the measurements are non-definitive. The short scale length and relatively glabrous achenes of the Washington plants are matched elsewhere only by plants of *L. minor* from the



southern portion of its California range. *Lasthenia minor* is strongly self-incompatible; *L. maritima* is strongly self-compatible, with high levels of autogamy in plants grown in insect-free greenhouses (Ornduff 1966). Single capitula of six cultivated specimens of the Washington plants were self-pollinated in 1993 and the mean achene-set of such plants was 5.1 percent. Single capitula of three individuals in this progeny were artificially cross-pollinated with other plants; their mean achene-set was 54.8 percent. While the latter figure may seem low, mean achene-set of 13 plants of *L. minor* in a natural population at Kehoe Beach, Marin Co., California, examined in May, 1993, was only 69.0 percent, a figure not remarkably higher than that obtained from the artificial cross-pollinations of the cultivated material from Washington. Thus we conclude that the Washington plants are self-incompatible. *Lasthenia maritima* nearly always occurs on soils derived from seabird guano, whereas *L. minor* very rarely occurs on such soils (Ornduff 1966; Vasey 1985). The Washington population does not grow on guano-enriched soil. Thus, on the basis of morphological characters, breeding system, and edaphic occurrence, we assign the Washington plants to *L. minor*. This disjunct population of *L. minor* occurs over 1000 km north of the nearest natural population of the species near Cleone, Mendocino County, California. It is possible that the Washington population originated from an accidental human introduction to the site, since the area is heavily visited by tourists. However, the distinctive combination of morphological characters of the Washington population of *L. minor* is unknown in California populations and leads us to believe that the Washington population may represent a natural disjunction of sufficient antiquity that morphological divergence has occurred.

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