

## References

- Abrams, L. 1944. **Illustrated flora of the Pacific States, Vol. II.** Stanford, CA: Stanford University Press; 635 p.
- Alexander, R. 1980. **Engelmann spruce-subalpine fir.** In: Eyre, F. H., ed. Forest cover types of the United States and Canada. Washington, DC: Society of American Foresters; 86-87.
- Atzet, T.; Wheeler, D. L. 1984. **Preliminary plant associations of the Siskiyou Mountains province.** Portland, OR: Pacific Northwest Region, Forest Service, U. S. Department of Agriculture; 315 p.
- Ball, J. T. 1976. **Ecological survey, Last Chance Meadow candidate research natural area, Mount Whitney Ranger District, Inyo National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Barbour, M. G.; Major, J., eds. 1977. **Terrestrial vegetation of California.** New York, NY: Wiley-Interscience; 1002 p.
- Beauchamp, R. M. 1986. **A flora of San Diego County, California.** National City, CA: Sweetwater River Press; 241 p.
- Becking, R. W. 1989. **Segregation of *Hastingsia serpentinicola* sp. nov. from *Hastingsia alba* (Liliaceae: Asphodeleae).** Madrono 36: 208-216.
- Beguín, C. N.; Major, J. 1975. **Contribution to the phytosociology and ecology of bogs of the Sierra Nevada (California).** Phytocoenologia 2(3/4): 349-367 (an English translation of the original French text is given as an appendix to Burke 1987).
- Berg, K. S. 1990. **Establishment record for Station Creek Research Natural Area within Eldorado National Forest in El Dorado County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Berg, K. S. 1991a. **Establishment record for Grass Lake Research Natural Area within Eldorado National Forest, managed in Lake Tahoe Basin Management Unit, in El Dorado County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Berg, K. S. 1991b. **Establishment record for Sugar Pine Point Research Natural Area within Tahoe National Forest in Nevada County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Borchert, M. 1985. **Serotony and cone-habit variation in populations of *Pinus coulteri* (Pinaceae) in the Southern Coast Ranges of California.** Madrono 32: 29-48.
- Borchert, M. 1987. **Establishment record for the Cone Peak Gradient Research Natural Area within Los Padres National Forest, Monterey County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Borchert, M.; Hibberd, M. 1984. **Gradient analysis of a north slope montane forest in the western Transverse Ranges of southern California.** Madrono 31: 129-139.
- Burke, M. T. 1985. **An ecological survey of Organ Valley candidate research natural area, Cleveland National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Burke, M. T. 1987. **Grass Lake, El Dorado County candidate research natural area, Lake Tahoe Basin Management Unit, USDA Forest Service.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Burke, M. T. 1992a. **An ecological survey of the proposed Broom Flat Ridge research natural area, San Bernardino National Forest, San Bernardino County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Burke, M. T. 1992b. **Ecological survey of Fisherman's Camp, San Bernardino County.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Burke, M. T. 1992c. **Horse Meadow, San Bernardino County.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Camilleri, E. P. 1979. **Environmental assessment, California bighorn sheep reintroduction to South Warner Wilderness.** Unpublished report on file, Warner Mountain Ranger District, Modoc National Forest, Cedarville, Calif.

- Cheng, S. 1996a. **Establishment record for Manzanita Creek Research Natural Area within Shasta-Trinity National Forest in Trinity County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Cheng, S. 1996b. **Establishment record for Mt. Eddy Research Natural Area within Shasta-Trinity National Forest in Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Cheng, S. 1996c. **Establishment record for Preacher Meadows Research Natural Area within Shasta-Trinity National Forest in Trinity County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Cheng, S. 1996d. **Establishment record for Red Butte-Red Fir Ridge Research Natural Area within Shasta-Trinity National Forest in Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Cheng, S. 1996e. **Establishment record for Wilder Ridge Research Natural Area within Mendocino National Forest in Tehama County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Cheng, S. 1997a. **Establishment record for Adorni Research Natural Area within Six Rivers National Forest in Humboldt County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, and Six Rivers Supervisor's Office, Eureka, Calif.
- Cheng, S. 1997b. **Establishment Record for Devil's Rock-Hosselkus Research Natural Area within Shasta-Trinity National Forest in Shasta County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Cheng, S. 1998. **Establishment record for the Ruth Research Natural Area within the Six Rivers National Forest, Trinity County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Clines, J. M. 1994. **Reproductive ecology of *Carpenteria californica* (Philadelphaceae).** Fresno: California State University, Department of Biology; 79 p. Masters thesis.
- Conard, S. G.; Robichaux, R. F. 1980. **Ecological survey of the proposed Soda Ridge research natural area, Lassen National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- DeDecker, M. 1975a. **Preliminary list of vascular plants from the proposed Last Chance Meadow research natural area.** In: Ball, J. T. 1976. Ecological survey, Last Chance Meadow candidate research natural area, Mount Whitney Ranger District, Inyo National Forest. Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- DeDecker, M. 1975b. **Preliminary list of vascular plants from the proposed Sentinel Meadow research natural area.** In: Talley, S. N. 1978. An ecological summary of the Sentinel Meadow candidate research natural area on the Inyo National Forest, CA. Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Dunn, A. T. 1987. **Population dynamics of the Tecate cypress.** In: Elias, T. S., ed. Conservation and management of rare and endangered plants. Sacramento, CA: California Native Plant Society; 367-376.
- Edwards, S.; Keeler-Wolf, T.; Knight, W. 1983. **A new *Arctostaphylos* (Ericaceae) from Siskiyou County, California: Part 1.** Four Seasons 6(4): 17-21.
- Eyre, F. H., ed. 1980. **Forest cover types of the United States and Canada.** Washington, DC: Society of American Foresters; 148 p.
- Fiedler, P. L. 1986. **Preliminary ecological survey of the Jawbone Ridge proposed research natural area, Stanislaus National Forest, Tuolumne County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Fiedler, P. L. 1987. **Ecological survey of the Antelope Creek Lakes proposed research natural area.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Fiedler, P.; Carnal, N.; Leidy, R. 1986. **Ecological survey of the Green Island Lake proposed research natural area.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Franklin, J. F. 1988. **Pacific northwest forests.** In: Barbour, M. G.; Billings, W. D., eds. North American terrestrial vegetation. Cambridge, NY: Cambridge University Press; 103-130.

- Frazier, C. 1989. **Proposal for the Eagle Crag (Agua Tibia) Research Natural Area.** Unpublished manuscript submitted by Zedler, P., Department of Biology, San Diego State University; on file, Pacific Southwest Research Station, Albany, Calif.
- Fritts, H. C. 1969. **Bristlecone pine in the White Mountains of California; growth and ring-width characteristics.** Papers of the Laboratory of Tree-Ring Research, no. 4, Tucson, AZ: University of Arizona Press; 44 p.
- Gautier, C.; Zedler, P. 1980. **Research natural area proposal: Guatay Mountain, Descanso District, Cleveland National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Griffin, J. R. 1975a. **Ecological survey of Junipero Serrra Peak candidate botanical area, Monterey District, Los Padres National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Griffin, J. R. 1975b. **Ecological survey of Teakettle Creek candidate research natural area, Sierra National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Griffin, J. R. 1976. **Ecological survey of South Fork Devil's Canyon candidate research natural area (NW. Cone Peak region), Monterey District, Los Padres National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Griffin, J. R. 1977. **Oak woodland.** In: Barbour, M.G.; Major, J., eds. *Terrestrial vegetation of California.* New York, NY: Wiley-Interscience; 383-416.
- Griffin, J. R.; Critchfield, W. B. 1976. **The distribution of forest trees in California.** Res. Paper PSW-GTR-82. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture; 114 p.
- Grove, J. 1978. **Patterns of vegetation near timberline in the Granite Chief area of the north central Sierra Nevada, Placer County, California.** Sacramento, CA: California State University; 128 p. Masters thesis.
- Hickman, J. C., ed. 1993. **The Jepson manual – higher plants of California.** Berkeley, Los Angeles, London: University of California Press; 1400 p.
- Hill, M.; Egenhoff, R. 1976. **A California Jokulhlaup.** *California Geology* 29: 154-158.
- Holland, R. 1986. **Preliminary descriptions of the terrestrial natural communities of California.** Unpublished; copies available from Calif. Dept. Fish and Game, Sacramento, Calif.
- Howitt, B.; J. Howell, J. 1964. **Vascular plants of Monterey County, California.** *Wassman Journal of Biology* 22: 1-184.
- Howitt, B.; Howell, J. 1973. **Supplement to the vascular plants of Monterey County, California.** Pacific Grove, CA: Pacific Grove Museum of Natural History; 60 p.
- Hrusa, F. G.; Hunter, J. C. 1996. **Black Butte Research Natural Area, Los Padres National Forest, San Luis Obispo County, California: Description, vegetation and flora.** Unpublished report on file, Los Padres National Forest supervisor's office, and Pacific Southwest Research Station, Albany, Calif.
- Imper, D. K. 1988a. **Ecological survey of the proposed Haypress Meadows research natural area, SAF type 207, Klamath National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Imper, D. K. 1988b. **Ecological survey of the proposed Shasta Red Fir research natural area, SAF type 207 (red fir), Shasta-Trinity National Forests.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Imper, D. K. 1991a. **Ecological survey of the proposed Craig's Creek research natural area, SAF type 248 (Knobcone Pine), Six Rivers National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Imper, D. K. 1991b. **Ecological survey of the proposed Mayfield research natural area, SAF type 248 (Knobcone Pine), Lassen National Forest.** Unpublished Report on file, Pacific Southwest Research Station, Albany, Calif.
- Inyo National Forest. 1982a. **Establishment report for Last Chance Meadow Research Natural Area within Inyo National Forest in Inyo County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.

## References

- Inyo National Forest. 1982b. **Establishment report for Sentinel Meadow Research Natural Area within Inyo National Forest in Mono County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Isle, D., Botanist, Mendocino National Forest, Forest Service, U.S. Department of Agriculture, Willows, CA. Personal communication. 1996.
- Jensen, D. B. 1992. **Ecological survey of Home Camp Creek proposed research natural area, Sierra National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Jensen, D. B.; Schierenbeck, K. A. 1989. **An ecological survey of the proposed Raider Creek research natural area, Modoc National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Johnson, D. R. 1995. **Establishment record for Hale Ridge Research Natural Area within Mendocino National Forest in Lake County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Jokerst, J. D. 1987. **An ecological reconnaissance survey of the Twin Rocks candidate research natural area.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1982. **An ecological survey of the proposed Cedar Basin research natural area, Shasta-Trinity National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1983. **An ecological survey of the Frenzel Creek Research Natural Area, Mendocino National Forest, Colusa County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1984a. **An ecological survey of the Devil's Garden Research Natural Area, Modoc National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1984b. **An ecological survey of the Mt. Shasta Mudflow Research Natural Area, Shasta-Trinity National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1984c. **Ecological evaluation of the Rough Gulch drainage with comparisons to the adjacent Chinquapin and Yolla Bolla candidate research natural areas, Shasta-Trinity National Forests, California.** Unpublished report filed with Shasta-Trinity National Forest, Redding, Calif.
- Keeler-Wolf, T. 1984d. **Vegetation map of the upper Sugar Creek drainage, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1985a. **An ecological survey of the proposed Bell Meadow research natural area, Stanislaus National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1985b. **An ecological survey of the proposed Mud Lake-Wheeler Peak Baker Cypress research natural area, Plumas National Forest, Plumas County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1985c. **Ecological survey of the proposed Bridge Creek research natural area, Klamath National Forest, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1986a. **An ecological survey of the proposed Cahuilla Mountain research natural area, San Bernardino National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1986b. **An ecological survey of the proposed Doll Basin research natural area, Mendocino National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1986c. **An ecological survey of the proposed Indian Creek research natural area, Lassen National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.

- Keeler-Wolf, T. 1986d. **An ecological survey of the proposed Stone Corral-Josephine Peridotite research natural area (L.E. Horton-Darlingtonia Bog RNA) on the Six Rivers National Forest, Del Norte County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1986e. **Ecological survey of the proposed Hall Canyon research natural area, San Bernardino National Forest, Riverside County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1987a. **An ecological survey of the proposed Big Grizzly Black Oak research natural area, Mariposa County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1987b. **An ecological survey of the proposed Crater Creek research natural area, Klamath National Forest, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1987c. **An ecological survey of the proposed Hale Ridge research natural area, Mendocino National Forest, Lake County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1987d. **An ecological survey of the proposed Pearch Creek research natural area, Six Rivers National Forest, Humboldt County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1987e. **An ecological survey of the proposed Rock Creek Butte research natural area, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1987f. **An ecological survey of the proposed Upper Goose Creek research natural area, Six Rivers National Forest, Del Norte County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1988a. **An ecological survey of the proposed Millard Canyon research natural area, San Bernardino National Forest, Riverside County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1988b. **The role of *Chrysolepis chrysophylla* (Fagaceae) in the *Pseudotsuga*-hardwood forest of the Klamath province of California.** Madrono 35(4): 285-308.
- Keeler-Wolf, T. 1989a. **An ecological survey of the Moses Mountain candidate research natural area, Sequoia National Forest, Tulare County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989b. **An ecological survey of the Wagon Caves proposed research natural area, Los Padres National Forest, Monterey Ranger District, Monterey County, California.** Unpublished report prepared for The Nature Conservancy, on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989c. **Draft establishment record for Antelope Creek Lakes Research Natural Area within the Klamath National Forest, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989d. **Draft establishment record for Bridge Creek Research Natural Area within the Klamath National Forest, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989e. **Draft establishment record for Cedar Basin Research Natural Area within Shasta-Trinity National Forests, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989f. **Draft establishment record for Sugar Creek Research Natural Area within the Klamath National Forest, Siskiyou County.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989g. **Ecological survey of the proposed Church Dome research natural area, Cannell Meadow Ranger District, Sequoia National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989h. **Ecological survey of the proposed Devil's Rock research natural area, Shasta-Trinity National Forests, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.

- Keeler-Wolf, T. 1989i. **Establishment record for Babbitt Peak Research Natural Area within the Tahoe and Toiyabe National Forests, Sierra County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989j. **Establishment record for Cahuilla Mountain Research Natural Area within San Bernardino National Forest, Riverside County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989k. **Establishment record for Hall Canyon Research Natural Area within San Bernardino National Forest, Riverside County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989l. **Establishment record for Moses Mountain Research Natural Area within Sequoia National Forest in Tulare County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989m. **Establishment record for Mount Pleasant Research Natural Area, Plumas National Forest, Plumas County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989n. **Establishment record for Mud Lake Research Natural Area within Plumas National Forest, Plumas County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1989o. **Establishment record for the Whippoorwill Flat Research Natural Area within the Inyo National Forest, Inyo County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1990a. **An ecological survey of the King Creek Research Natural Area, Cleveland National Forest, San Diego County, California.** Unpublished report prepared for The Nature Conservancy, on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1990b. **An ecological survey of the proposed Long Canyon research natural area, Sequoia National Forest, Kern County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1990c. **Draft establishment record for Adorni Research Natural Area within Six Rivers National Forest in Humboldt County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1990d. **Draft establishment record for Indian Creek Research Natural Area within Lassen National Forest, Tehama County, California.** Unpublished draft on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1990e. **Ecological surveys of Forest Service research natural areas in California.** Gen. Tech. Rep. PSW-GTR-125. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture; 177 p.
- Keeler-Wolf, T. 1990f. **Ecological survey of the proposed Timbered Crater research natural area, Lassen National Forest, Siskiyou County, California.** Unpublished report prepared for The Nature Conservancy, on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1990g. **Establishment record for Doll Basin Research Natural Area within Mendocino National Forest, Tehama County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1991a. **Ecological survey of the proposed Big Pine Mountain research natural area, Los Padres National Forest, Santa Barbara County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1991b. **Ecological survey of the proposed Clark Fork research natural area, Stanislaus National Forest, Tuolumne County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1991c. **Ecological survey of the proposed Mountaineer Creek research natural area, Sequoia National Forest, Tulare County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1991d. **Establishment record for Church Dome Research Natural Area within Sequoia National Forest in Tulare County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1991e. **Establishment record for King Creek Research Natural Area within Cleveland National Forest in San Diego County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.

- Keeler-Wolf, T. 1991f. **Establishment record for Millard Canyon Research Natural Area within San Bernardino National Forest in Riverside County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T. 1992. **Ecological survey of the Graham Pinery candidate research natural area, Lassen National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T.; Keeler-Wolf, V. 1975. **A survey of the scientific values in the proposed Hosselkus Limestone research natural area, Shasta-Trinity National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T.; Keeler-Wolf, V. 1976. **A survey of the scientific values of the proposed Whippoorwill Flat research natural area, Inyo National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T.; Keeler-Wolf, V. 1977. **A survey of the scientific values of the proposed Limekiln Creek research natural area, Monterey Ranger District, Los Padres National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Keeler-Wolf, T.; Keeler-Wolf, V. 1981. **An ecological survey of the proposed Mount Pleasant research natural area, Plumas National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Kinloch, B. B., Jr. 1992. **Distribution and frequency of a gene for resistance to white pine blister rust in natural populations of sugar pine.** Canadian Journal of Botany 70: 1319-1323.
- Kliwer, G. 1983. **Order-3 soil survey of Lassen National Forest.** Unpublished manuscript on file, Lassen National Forest, Susanville, Calif.
- Kruckeberg, A. R. 1984. **California serpentines: Flora, vegetation, geology, soils, and management problems.** Berkeley, Los Angeles: University of California Press; 180 p.
- Kuchler, A. W. 1966. **Potential natural vegetation.** National Atlas, sheet no. 90. Washington, D.C.: Geological Survey, U.S. Dept. Interior.
- Lassen National Forest. 1981. **Establishment report for the Cub Creek Research Natural Area within the Lassen National Forest in Tehama County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- LaMarche, V. C.; Mooney, H. A. 1967. **Altithermal timberline advance in western United States.** Nature 213: 980-982.
- Leitner, B. M.; Leitner, P. 1988. **An ecological survey of the proposed Soldier research natural area, Six Rivers National Forest, Trinity County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Martin, A. 1990a. **Establishment record for Agua Tibia Research Natural Area within Cleveland National Forest in San Diego County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Martin, A. 1990b. **Establishment record for American Canyon Research Natural Area within Los Padres National Forest in San Luis Obispo County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Martin, A. J. 1990c. **Establishment record for Organ Valley Research Natural Area within Cleveland National Forest in San Diego County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Martin, A. J. 1991a. **Establishment record for Lyon Peak/Needle Lake Research Natural Area within Tahoe National Forest in Placer County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Martin, A. J. 1991b. **Establishment record for Peavine Point Research Natural Area within Eldorado National Forest in El Dorado County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Martin, A. 1995. **Establishment record for Devil's Basin Research Natural Area within Mendocino National Forest in Tehama County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- McDonald, P. M; Littrell, E. L. 1976. **The bigcone Douglas-fir-canyon live oak community in southern California.** Madrono 23: 310-320.

- Meier, L. 1979. **A vegetative survey of the Fern Canyon Research Natural Area, San Dimas Experimental Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Mendocino National Forest. 1987. **Proposed land and resource management plan.** Willows, CA: Pacific Southwest Region, Forest Service, U.S. Department of Agriculture; various pages.
- Miles, S. R.; Goudey, C. B., compilers. 1997. **Ecological subregions of California, section and subsection descriptions.** R5-EM-TP-005. San Francisco, CA: Pacific Southwest Region, Forest Service, U.S. Department of Agriculture; various pages.
- Millar, C., Research geneticist, Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture, Albany, CA. Personal communication. 1989.
- Miller, P. R. 1984. **Ozone effects in the San Bernardino National Forest.** In: Davis, D. D.; Millan, A. A.; Dochinger, L. S., eds. Symposium on air pollution and the productivity of the forest; 1983 October 4-5; the Capitol Holiday Inn, Washington D.C. University Park, PA: Izaak Walton League of America, Pennsylvania State University; 161-197.
- Mize, C. W. 1973. **Vegetation types of lower elevation forests in the Klamath region, California.** Arcata, CA: Humboldt State University; 481 p. Masters thesis.
- Mooney, H. A. 1973. **Plant communities and vegetation.** In: Lloyd, R. M.; Mitchell, R. S., eds. A flora of the White Mountains, California and Nevada. Berkeley, Los Angeles: University of California Press; 7-17.
- Munz, P. A. 1968. **A California flora and supplement.** Berkeley, Los Angeles: University of California Press; 224 p.
- Munz, P. A. 1974. **A flora of southern California.** Berkeley, Los Angeles: University of California Press; 1086 p.
- Munz, P. A.; Keck, D. D. 1959. **California plant communities.** In: Munz, P.A. A California flora. Berkeley, Los Angeles: University of California Press; 10-18.
- Nachlinger, J. L. 1988a. **An ecological survey of the candidate Highland Lakes research natural area, Stanislaus National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Nachlinger, J. L. 1988b. **An ecological survey of the candidate Lyon Peak/Needle Lake research natural area, Tahoe National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Nachlinger, J. L. 1992. **An ecological survey of the candidate Snow Canyon research natural area, Eldorado National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Newton, G. B. 1987. **Ecological survey of the Devil's Basin proposed research natural area.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Oosting, H. J.; Billings, W. D. 1943. ***Abietum magnificae*: The red fir forest of the Sierra Nevada.** Ecological Monographs 13: 259-274.
- Pacific Southwest Forest and Range Experiment Station. 1970. **Establishment record for Backbone Creek Research Natural Area within Sierra National Forest in Fresno County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Pacific Southwest Forest and Range Experiment Station. 1971. **Establishment record for San Joaquin Experimental Range Research Natural Area within San Joaquin Experimental Range in Madera County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Pacific Southwest Forest and Range Experiment Station. 1976. **Establishment record for Blacks Mountain Research Natural Area within Blacks Mountain Experimental Forest in Lassen County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Palmer, R. 1981. **Ecological survey of the vegetation of the Sugar Pine Point area, Tahoe National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Parikh, A. 1993a. **Ecological survey report, San Emigdio Mesa candidate research natural area, Los Padres National Forest, Mount Pinos Ranger District, Ventura County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.

- Parikh, A. 1993b. **Ecological survey report, Sawmill Mountain candidate research natural area, Los Padres National Forest, Mount Pinos Ranger District, Ventura County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Petersen, R. R. 1994a. **Establishment record for Bell Meadow Research Natural Area within Stanislaus National Forest, Tuolumne County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Petersen, R. R. 1994b. **Establishment record for Grizzly Mountain Research Natural Area within Stanislaus National Forest in Mariposa County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Petersen, R. R. 1994c. **Establishment record for William B. Critchfield Research Natural Area within Stanislaus National Forest in Tuolumne County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Phillips, C. 1998a. **Establishment record for Black Butte Research Natural Area within Los Padres National Forest in San Luis Obispo County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Phillips, C. 1998b. **Establishment record for Falls Canyon Research Natural Area within Angeles National Forest in Los Angeles County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Phillips, C. 1998c. **Establishment record for Fisherman's Camp Research Natural Area within San Bernardino National Forest in San Bernardino County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Phillips, C. 1998d. **Establishment record for Horse Meadow Research Natural Area within San Bernardino National Forest in San Bernardino County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Phillips, C. 1998e. **Establishment record for San Emigdio Mesa Research Natural Area within Los Padres National Forest in Ventura County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Rantz, S. E. 1972. **Mean annual precipitation in the California region.** USGS map. Washington, DC: U.S. Geological Survey.
- Ratliff, R. D. 1985. **Meadows in the Sierra Nevada of California: State of knowledge.** Gen. Tech. Rep. PSW-GTR-84. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture; 52 p.
- Raven, P. H.; Axelrod, D. I. 1978. **Origin and relationships of the California flora.** University of California Publications in Botany 72: 1-134.
- Reveal, J. L. 1978. **A report on the autecology and status of cuyamaca cypress (*Cupressus arizonica* var. *stephensonii*), Cleveland National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Rundel, P. W.; Shultz, L. M. 1992. **An ecological survey of the candidate Wilder Ridge research natural area, Mendocino National Forest, Tehama County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Rundel, P. W.; Parsons, D. J.; Gordon, D. T. 1977. **Montane and subalpine vegetation of the Sierra Nevada and Cascade Ranges.** In: Barbour, M. G.; Major, J., eds. Terrestrial vegetation of California. New York, NY: Wiley-Interscience; 559-600.
- Sawyer, J. O. 1981a. **Ecological survey of the Adorni candidate research natural area, Humboldt County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Sawyer, J. O. 1981b. **An ecological survey of the North Trinity Mountain candidate research natural area, Humboldt County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Sawyer, J. O. 1987. **The problem of the Salmon Mountain.** In: Elias, T. S., ed. Conservation and management of rare and endangered plants. Sacramento, CA: California Native Plant Society; 155-158.
- Sawyer, J. O.; Palmer, J.; Cope, E. 1978. **An ecological survey of the proposed Preacher Meadows research natural area, Trinity County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.

- Sawyer, J. O.; Stillman, K. T. 1977a. **An ecological survey of the proposed Specimen Creek research natural area, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Sawyer, J. O.; Stillman, K. T. 1977b. **An ecological survey of the proposed William's Point research natural area, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Sawyer, J. O.; Stillman, K. T.; Stekel, P. 1978. **An ecological survey of the proposed Indian Creek Brewer Spruce research natural area, Siskiyou County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Sawyer, J. O.; Thornburgh, D. A. 1969. **Ecological reconnaissance of relict conifers of the Klamath region. Report to Pacific Southwest Forest and Range Experiment Station, Berkeley, California.** PSW COOP-AID Grant #7. Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Sawyer, J. O.; Thornburgh, D. A. 1970. **The ecology of relict conifers in the Klamath region, California.** Report to Pacific Southwest Forest and Range Experiment Station, Berkeley, California. PSW COOP-AID Grant #9. Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Sawyer, J. O.; Thornburgh, D. A. 1971. **Vegetation types on granodiorite in the Klamath Mountains, California.** Report to the Pacific Southwest Forest and Range Experiment Station, Berkeley, California. PSW COOP-AID agreement supplement #10. Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Sawyer, J. O.; Thornburgh, D. A. 1977. **Montane and subalpine vegetation of the Klamath Mountains.** In: Barbour, M. G.; Major, J., eds. *Terrestrial vegetation of California.* New York, NY: Wiley Interscience; 699-732.
- Sawyer, J. O., Thornburgh, D. A.; Griffin, J. R. 1977. **Mixed evergreen forest.** In: Barbour, M. G.; Major, J., eds. *Terrestrial vegetation of California.* New York, NY: Wiley Interscience; 359-382.
- Schettler, S. 1989. **Ecological survey report, American Canyon candidate research natural area, San Luis Obispo County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Schulman, E. 1954. **Longevity under adversity in conifers.** *Science* 119: 395-399.
- Scott, R.; Buer, K.; James, S. 1980. **South Fork Trinity River watershed study.** In: *Symposium on watershed management, Volume I; 1980 July 21-23; Boise, ID.* New York, NY: American Society of Civil Engineers; 406-417.
- Shasta-Trinity National Forests. 1988. **Draft land and resource management plan.** U.S. Department of Agriculture, Forest Service, Pacific Southwest Region; various pages.
- Skinner, M. W.; Pavlik, B. M., eds. 1994. **Inventory of rare and endangered vascular plants of California,** 5th ed. Sacramento, CA: California Native Plant Society; 338 p.
- Smith, C. R. 1978. **Tubatulabal.** In: Heizer, R. F., ed. *Handbook of North America Indians, Volume 8: California.* Washington, DC: Smithsonian Institution; 437-445.
- Sollins, P.; Spycher, G.; Topik, C. 1985. **Processes of soil organic matter accretion at a mudflow chronosequence, Mount Shasta, California.** *Ecology* 64: 1273-1282.
- Sproul, F. T. 1981. **Ecological survey of Falls Canyon candidate research natural area, Angeles National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Stebbins, G. L.; Major, J. 1965. **Endemism and speciation in the California flora.** *Ecological Monographs* 35: 1-35.
- Talley, S. N. 1974. **The ecology of Santa Lucia fir (*Abies bracteata*), a narrow endemic of California.** Durham, NC: Duke University; 209 p. Ph.D. dissertation.
- Talley, S. N. 1976. **An ecological survey of the Bourland Meadow candidate research natural area on the Stanislaus National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Talley, S. N. 1977a. **An ecological survey of the Babbitt Peak candidate research natural area on the Tahoe National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.

- Talley, S. N. 1977b. **An ecological survey of the Onion Creek candidate research natural area on the Tahoe National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Talley, S. N. 1978. **An ecological survey of the Sentinel Meadow candidate research natural area on the Inyo National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Talley, S. N. 1979. **Vegetation, growth, and structure of a low elevation mixed conifer forest in the central Sierra Nevada, Merced River candidate research natural area, Sierra National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W. 1975a. **Site evaluation: Yolla Bolla Research Natural Area.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W. 1975b. **Composition of an old-growth Douglas-fir forest in northwestern California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W. 1976. **Vegetation reconnaissance of the White Mountain Scientific Area and vicinity, Inyo National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W. 1979. **Ecological survey of the vegetation of White Mountain Natural Area, Inyo National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W. 1980. **Ecological survey of the vegetation of Indiana Summit Research Natural Area, Inyo National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W. 1982. **Ecological survey of the vegetation of the Yurok Research Natural Area, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W. 1984. **Vegetation of the Harvey Monroe Hall Research Natural Area, Inyo National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W.; Randall, D. C. 1977a. **Ecological survey of the vegetation of the proposed Bald Mountain (Station Creek) research natural area, Eldorado National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W.; Randall, D. C. 1977b. **Ecological survey of the vegetation of the proposed Peavine Point research natural area, Eldorado National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W.; Randall, D. C. 1978. **Ecological survey of the vegetation of the Cub Creek watershed, Lassen National Forest.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W.; Teare, K. A. 1979a. **Ecological survey of the vegetation of the proposed Smoky Creek research natural area, Shasta-Trinity National Forest, Trinity County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Taylor, D. W.; Teare, K. A. 1979b. **Ecological survey of the vegetation of the proposed Trelorita research natural area, Shasta-Trinity National Forest, Trinity County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Thornburgh, D. A. 1981. **An ecological survey of the proposed Ruth research natural area, Trinity County, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Thornburgh, D. A. 1987. **An ecological survey of the proposed Hennessy Ridge research natural area, Six Rivers National Forest, California.** Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Thorne, R. F. 1976. **The vascular plant communities of California.** In: Latting, J., ed. Plant communities of southern California. Spec. Pub. 2. Berkeley, CA: California Native Plant Society; 1-31.

- Travers, S. 1993. **cRNA Report - McAffee Meadow**. Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- Waring, R. H. 1969. **Forest plants of the eastern Siskiyou: Their environmental and vegetational distribution**. Northwest Science 43: 1-17.
- West, C. J. 1986. **Late Pleistocene and Holocene vegetation and climatic changes**. In: Basgall, M. E.; Hildebrunt, W. R. Data recovery evaluations at sites CA-SHA-1176, CA-SHA-1175, and CA-SHA-476, Shasta County, California. Unpublished document on file, Shasta-Trinity National Forests supervisor's office, Redding, and McCloud Ranger District, McCloud, Calif.
- West, N. E. 1988. **Intermountain deserts, shrub steppes, and woodlands**. In: Barbour, M. G.; Billings, W. D., eds. North American terrestrial vegetation. Cambridge, NY: Cambridge University Press; 209-230.
- Westman, W. E. 1981. **Factors influencing the distribution of species in California coastal sage scrub**. Ecology 62: 439-455.
- Whipple, J.; Cope, E. 1979. **An ecological survey of a proposed Mt. Eddy research natural area**. Unpublished report on file, Pacific Southwest Research Station, Albany, Calif.
- White, S. 1994. **Cleghorn Canyon candidate research natural area: Ecological survey and bioregional analysis**. Tierra Madre Consultants, Inc. Unpublished report on file, Pacific Southwest Research Station; Albany, Calif. 87 p.
- Whittaker, R. H. 1960. **Vegetation of the Siskiyou Mountains, Oregon and California**. Ecological Monographs 30: 279-338.
- Whittaker, R.H. 1975. **Communities and ecosystems**. 2nd ed. New York, NY: MacMillan; 385 p.
- Wickenheiser, L. P. 1989. **Report to the Fish and Game Commission on the status of tree anemone (*Carpenteria californica*)**. California Department of Fish and Game, Natural Heritage Division Status Report 89-8. Unpublished report prepared for California Department of Fish and Game; 19 p.
- Wright, R. D.; Mooney, H. A. 1965. **Substrate-oriented distribution of bristlecone pine in the White Mountains of California**. American Midland Naturalist 73: 257-284.

# Glossary

- altern:** an abrupt boundary between plant communities or associations
- aplite:** a granitic rock without biotite and related to pegmatites, with which it is often found
- association table:** a method of describing plant communities by summarizing results from a releve sample in matrix form, grouping species which tend to occur together into associations
- bajada:** a type of plain in arid regions formed by deposition of debris in fan-shaped spreads at the base of mountains
- Botanical Areas:** USDA Forest Service areas managed for their unique botanical values, a type of Special Interest Area
- calcareous:** rocks containing much calcium such as limestone, marble, and dolomite
- charnockitic:** containing charnockite, a coarse granular rock similar to granite which resulted from crystallization of magma at great depths or by ultra-metamorphism of basic igneous rock
- climax:** the end-product of a successional sequence, characterized by the lack of significant (directional) changes in species composition
- colluvium:** weathered rocky material brought down by gravity from mountain slopes (including scree and talus)
- congeliturbation:** freeze-thaw sorting of soil into rings with coarser rocks and boulders surrounding sand and gravel
- depauperate:** poorly developed
- dis-climax:** an arrested climax, the result of some periodic environmental disturbance, such as fire, that prevents further succession
- ecotone:** a gradual boundary between plant communities or associations
- edaphic:** relating to soil
- edaphic climax:** an association of plants which has attained its highest possible successional state given its present soil conditions; e.g., mountain chaparral may be successional to mixed conifer forest on deep soils, but on dry rocky soils it may be an edaphic climax
- endemic:** a taxon restricted to a certain area or habitat, may be divided into neo-endemics (evolutionarily recent) or paleoendemics (relicts which may have once been more widespread)
- ericaceous:** referring to members of the heath family (Ericaceae)
- establishment site-limited:** limited to small favorable sites for germination within a community
- even-aged stand:** a forest stand composed of trees of all essentially the same age
- gap regeneration species:** tree species which tend to regenerate in openings in the forest are said to have this type of regeneration; also called gap-phase regeneration
- graywacke:** a type of sandstone characterized by rather angular and poorly sorted grains, thought to have originated from off-shore turbidity flows. It is widespread in the Franciscan assemblage of the Coast Ranges.
- hydrophilic:** water-loving
- hydrophyte:** a plant that grows in wet conditions
- importance value:** a synthesized measurement for rating the representation of a plant species in a stand of vegetation. It is based on a sum of sampling values (e.g., relative density + relative frequency + relative cover). This value is given as a multiple of 100. Thus if three values are synthesized, the highest possible value is 300. If two values are added, the maximum would be 200.
- line intercept method:** a plotless vegetation sampling method counting all species touched by a line of predetermined length and determining their dominance by measuring the portion of the line that they cover

- liana:** a woody vine such as California wild grape (*Vitis californica*)
- lithosol:** well-drained, shallow, stony soils over bedrock
- management indicator species:** a type of plant or animal whose presence in a habitat or area is a fairly certain sign or symptom that particular environmental conditions are also present
- mass wasting:** a type of gravity transport of rock and soil with sliding taking place either on a definite plane which may be related to the structure of the rock, or on a curved shear surface as in clay-rich soils
- mesic:** moist, midway between xeric and hydric in moisture conditions
- mesophyte:** a plant growing in moderate (moist) moisture conditions
- mesophilic:** referring to species preferring moderate moisture conditions, typical of sheltered mid-slope to lower-slope locations in California
- oolitic limestones:** limestones having numerous spherical rock particles that have grown by accretion around a nucleus
- paternoster lakes:** glacially formed lakes arranged in a stepping-stone manner down a glacially carved valley
- point-center(ed) quarter method:** a plotless vegetation sampling technique in which points are chosen in a plant community. Each point represents the center of a four-cornered area. From each quadrant the nearest tree is sampled and calculations on density, frequency and cover can be made.
- regosolic:** having characteristics of regosols, typically poorly developed well-drained soils derived from recent deposits of deep volcanic ash
- releve:** a sample quadrat (plot) used for vegetation analysis, the size of which is based on a minimal area in which the species of a community are adequately represented. On relevés each species is recorded and several parameters are estimated (in size classes, not by absolute measurements), most typically including cover of each species, slope exposure, slope angle, and other environmental characteristics.
- rupicolous:** rock-inhabiting, rock-loving
- sclerophyll:** a plant characteristic of Mediterranean climates with a thickened cuticle on the leaves
- seral:** referring to vegetation that is changing, a transitory stage in an ecological succession
- serpentine:** the California state rock. More properly referred to as serpentinite, peridotite, dunite, etc. Serpentine is the lay person's generic term for these ultramafic rocks poor in calcium and high in magnesium, which create a harsh environment for vegetation. Most serpentine areas have unique floras with a high percentage of specially adapted, endemic taxa.
- serotinous:** late in opening, as in serotinous cones of closed-cone cypresses and pines
- site class:** a measure of productivity for forests, usually measured in cubic feet/acre/year. There are seven site classes with 1 the highest (225+ ft<sup>3</sup>/acre/yr) and 7 the lowest (<20 ft<sup>3</sup>/acre/yr).
- site index:** a measurement of tree growth potential for a given area based on the rate of growth of certain dominant tree species. Generally based on the length of time the dominant timber species takes to reach 100 ft (31 m) in height.
- size classes:** recognizable cohorts of trees in a forest representing different ages, e.g., saplings and seedlings, pole size, and mature trees
- solifluction lobes:** saturated soil slumping in alpine zone
- special interest area:** areas established and managed by the USDA Forest Service for their unique special features. These include geological, historical, archeological, botanical, and other noteworthy features.
- vertisol:** a clay-rich soil which usually has alternating wet and dry periods and tends to form large cracks in the dry season.
- xeric:** dry
- xerophyte:** a plant growing in dry conditions
- xerophilic:** dry-adapted (dry loving)

## Symbols and Abbreviations

- cm** centimeter
- CNPS** California Native Plant Society
- cRNA** candidate research natural area, formally nominated and approved for establishment but not incorporated in land management plans
- dbh** diameter(s) at breast height (4.5 ft, 1.4 m)
- ft** feet
- E.** east or easterly
- ESE.** east-southeast
- ha** hectare
- HBM** Humboldt Baseline and Meridian
- IV** importance value
- km** kilometer(s)
- m** meter(s)
- m<sup>2</sup>/ha** square meter(s) per hectare (the standard measurement for basal area cover of trees in this report)
- MDBM** Mount Diablo Baseline and Meridian
- mm** millimeter(s)
- N.** north or northerly
- n** sample size
- NE.** northeast
- NNW.** north-northwest
- NW.** northwest
- pRNA** proposed research natural area, recognized but not yet fully reviewed or approved
- R** Range, as in Township and Range land divisions
- rRNA** recommended research natural area, recognized in current National Forest land management plans
- RNA** Research Natural Area
- S.** south or southerly
- SAF** Society of American Foresters; used herein to designate a forest cover type classified in the SAF system (Eyre 1980)
- SBBM** San Bernardino Baseline and Meridian
- SD** standard deviation
- SE.** southeast
- sect.(p.s.).** section(s) within Township and Range land divisions
  - sp.** an unidentified species (following a genus name)
  - spp.** several species of a genus
  - ssp.** subspecies
- ssp. nov.** undescribed subspecies
  - SSE.** south-southeast
  - SSW.** south-southwest
  - SW.** southwest
  - T** Township
  - var.** variety of a species

## Symbols and Abbreviations

- W.** west or westerly
- WSW.** west-southwest
- x** indicates a taxon of hybrid origin as in *Quercus x morehus*
- >** greater than
- <** less than
- '** minutes as in degrees and minutes of latitude or longitude
- ±** plus or minus, or in conjunction with a number indicating confidence limits