
From snow-capped peaks to glimmering salt playas, from red-rock canyons to mountain lakes and streams, the Intermountain region contains some of the most spectacular and varied landscapes in North America, if not the world. It is a land of extremes of climate, geology, and flora. It is home to the oldest living organisms, the Great Basin bristlecone pine (Pinus longaeva), individual trees of which can be over 4000 years old. Conversely, some distinctive hybrid populations of Atriplex that some people consider to be incipient species have formed recently (perhaps within the last 50 years) and represent "evolution in action" (Stutz, 1984). The Intermountain region contains some of the most charming wildflowers (Penstemon, Calochortus, Mimulus, Aquilegia, among many others) as well as some of the most persistent invasive introduced weeds (e.g., Bromus tectorum, or cheat grass, the "scourge of the West"). Perhaps the region is best exemplified by the tough and bizarre salt-desert species such as iodine bush, Allenrolfea occidentalis (Chenopodiaceae), able to survive freezing winters and scorching summers, extreme drought, and salt concentrations of over 6%. In all, it is a harsh yet magnificent land that harbors some of the most interesting plants on earth.

All of these species, and more, are covered in the Intermountain Flora series, a multivolume collaborative work that is the definitive taxonomic resource for plants of the region. The most recent volume is the seventh to be published out of eight planned to encompass the entire flora. When the Intermountain Flora is complete, it will rank as one of the finest regional floras for North American plants.

The Intermountain region is in large part synonymous with the Great Basin, an area bounded on the west by the Sierra Nevada, on the north by the Snake River, on the east by the Rocky Mountains, and on the south by the Mojave Desert. The Great Basin itself is variously circumscribed, but its most explicit definition includes that part of the western United States with no drainage to the oceans (Trimble, 1989). The region covered by the Intermountain Flora encompasses much of this hydrographic Great Basin, but the Flora boundaries are expanded to cover all of the state of Utah, much of Nevada, and neighboring parts of Oregon, California, Idaho, Wyoming, and Arizona; the extreme southern part of Nevada and most of California south of Inyo County are excluded. The area includes over 250,000 square miles (650,000 square kilometers). It is dominated by sagebrush (Artemisia tridentata) and chenopods in the foothills and valleys; its southern boundary is drawn basically at the limit of communities dominated by creosote bush (Larrea tridentata). Although the total number of species treated is not listed (and, because the flora is not yet completed, cannot be enumerated), it must exceed 4000 taxa; Utah alone has over 2700 indigenous species (Welsh et al., 2003). Because of the high degree of substrate endemism and, even today, the inaccessibility of many Intermountain sites, new records and even undescribed species are to be expected.

The genesis of the Intermountain Flora project was over 50 years ago, and the first published volume in the series dates from 1972 (Cronquist et al., 1972). Scores of notable botanists have contributed their expertise in writing or reviewing taxonomic treatments, but the principal authors who have shepherded the series through to the current volume are Noel and Patricia Holmgren and, until his death in 1992, Arthur Cronquist. It is poignant that Dr. Cronquist died in the herbarium at Brigham Young University while working on treatments for the Intermountain Flora.

Volume 1 contains a classic introduction to the region, with chapters on physiography, paleobotany, and geology, floristic divisions and vegetation zones, along with a chapter on botanical exploration of the Intermountain West. This section is richly illustrated with maps and photographs of physical features and plant associations, but a particular treat is the inclusion of portraits or photographs of prominent botanical explorers ranging from N. J. Wyeth and Thomas Nuttall to contemporary...
botanists such as Stan Welsh. Each volume begins with evocative photos of the principal authors or contributors, and these are a veritable who’s-who of Western American botany. The most recent volume, 2B, continues this tradition with four wonderful photographs: Rupert Barneby standing out in the desert steppe with soaring mesas in the distance; Arthur Cronquist, complete with cowboy hat, hand lens, and field guide, wading through a field of knee-high vegetation; and contemplative photos of Leo Hitchcock and Arthur Holmgren writing in their field books. One hopes that the final volume will feature at least one photo of stalwart author and editor Pat Holmgren, who has not yet appeared in the photographic pantheon.

Following the introductory chapters, Volume 1 begins with treatments of the seedless vascular plants and gymnosperms. Volume 2A will be the last to be published and will include treatments of the Magnoliidae, Hamamelidae, and Caryophyllidae sensu Cronquist (1981). This volume is eagerly awaited, as it will treat the Chenopodiaceae and Polygonaceae, both notoriously difficult, species-rich families in the Intermountain West. The current volume, 2B, contains treatments of subclass Dilleniidae sensu Cronquist, including significant families such as Malvaceae, Loasaceae, Salicaceae, Ericaceae, and Brassicaceae. Volume 3A treats the Rosidae sensu Cronquist except for Fabaceae. Volume 3B is entirely devoted to the legumes, with the majority of the treatments written by Rupert Barneby. Volume 4 covers the Asteridae except Asteraeae, including families such as the Lamiaeae, Scrophulariaceae, and Boraginaeae. Volume 5, by Cronquist, is a godsend for us western botanists, as it covers all of the Asteraeae, on which Cronquist was a taxonomic authority. Volume 6 contains all of the monocots.

The taxonomic presentation is consistent throughout all of the volumes and is of the highest standard. In addition to keys and complete descriptions of all genera and species, at least one line drawing, or more often a composite, illustrates each species. For the most part, these drawings are of exquisite quality, and render the Intermountain Flora the gold standard for identification of any species found in the area. The synonymy and distributional information are quite complete and extend coverage to areas outside the flora region proper. Interesting tidbits on history, uses, and even poetic tributes (see *Populus tremuloides*) are sprinkled throughout the commentary, making for much more interesting reading than your typical taxonomic treatment. The all-important ruler is provided at the end of the book, with maps of the Intermountain states, counties, and floristic regions on the inside front and back covers.

The families included in each volume correspond to Cronquist’s (1981) subclasses and orders, a situation that may frustrate followers of the Angiosperm Phylogeny Group (APG, 1998; APG II, 2003; Stevens, 2001) or similar recent classification systems for flowering plants at and above the family level. This arrangement is defensible because the Intermountain Flora project and publication of volumes began long before the APG system was developed. However, only those botanists intimately acquainted with Cronquist’s subclasses will be able to navigate the volumes and remember what families are included in each. A welcome addition to the future Volume 2A would be an index to volumes and families printed in an easily accessible place, such as the inside front cover. Genera and species are arranged in “evolutionary” order according to putative relationships rather than in alphabetical order. Unfortunately, this feature requires many trips to the Index to locate particular taxa.

The families and genera treated in this flora are often traditionally circumscribed and/or follow Cronquist’s taxonomic concepts. Thus, many do not reflect some of the radical rearrangements that have taken place as a result of further, often molecular, study. For instance, in Volume 2B the Tiliaceae is treated as separate from the Malvaceae, *Caradina* is distinct from *Lepidium*, and *Samolus* remains in the Primulaceae. However, new data and the APG recommendations are incorporated into some taxa, such as the recognition of Cleomaceae as distinct from Capparaceae, the sinking of *Lesquerella* into *Physaria*, the use of the name *Noccaea* for the former *Thlaspi montana*, and the deconstruction of *Arabis* with placement of most of the North American species in *Boechera*.

With eight hardbound volumes weighing in (thus far) at about 10 kg (22 lb), the Intermountain Flora is not a backpackable field guide. The price of US$350 for the seven published books will probably be beyond the budget of students or casual wildflower observers. Nevertheless, every one of these volumes belongs on the shelf of anyone with an interest in identifying plants of western North America. Although the existing state floras for Wyoming and Utah (Dorn, 2001; Welsh et al., 2003) are up-to-date, comprehensive, and useful, only the flora of the Pacific Northwest (Hitchcock et al., 1955-1969) and the indispensable *Jepson Manual* (Hickman, 1993) approach the Intermountain Flora in terms of user-friendliness, overall quality, and completeness.

As a botanist who frequently works in tropical areas where no floras exist, I am delighted to have this wonderful resource available to identify the plants in my own Great Basin backyard. The authoritative taxonomic treatments and keys, coupled with the excellent illustrations, make this series a valuable resource not only for Intermountain botanists but also for those of adjacent areas. One can only hope that future floristic works will achieve such a high standard of quality as that displayed by the Intermountain Flora. This is truly an outstanding series, and a worthy tribute to the long-term efforts of the Holmgreens and Dr. Cronquist in bringing the Intermountain Flora to fruition.

REFERENCES


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