Native Plant Society of New Mexico newsletter

VOLUME II, NO. 1

JANUARY - FEBRUARY 1981

MEMBERS:

If you have not already done so, please pay your 1981 dues. This is the last newsletter for those who have not paid. (Persons who newly joined since August have paid their 1981 dues.)

NON-MEMBERS:

This newsletter comes to you with our hope that you will consider joining the Native Plant Society, a group active in the enjoyment, study, use, and protection of New Mexico's flora.

ALL: Dues are $6 per year; or $8 for families; or $4 for students and seniors. Write to Dorothy DeWitt, 1414 Old Pecos Trail, Santa Fe 87501.

January 8	Las Cruces Chapter meets ("on second Thursdays") in Room 156, Agriculture Bldg., NMSU; 7:30 p.m.
January 9-12	Wild Plant Seeker's Clinic; An Introduction to the Pleasures of Wild Plant Identification. Myra McCormick, Bear Mountain Guest Ranch, Silver City 88061.
January 21	Albuquerque Chapter meets ("on third Wednesdays") in Room 34, Monte Vista Christian Church, 3501 Campus Blvd. NE; 7:30 p.m. In addition to the program (not yet scheduled at press time) there will be election of officers.
January 21	Santa Fe Chapter meets ("on third Wednesdays") in Room 122, Laboratory Bldg., St. John's College; 7:30 p.m. Linnie Kellahin will show wildflower slides with comments on transplanting natives.
January ?	A Belen Chapter is being organized, according to Judith Phillips; meeting time and place not yet settled.
February 12	Las Cruces Chapter (as above).
February 18	Albuquerque Chapter (as above).
February 18	Santa Fe Chapter (as above).

THE NATIVE PLANT SOCIETY

Officers

For 1981 we've elected:

Fairley Barnes, State Coordinator; Los Alamos; 662-5910 home, 667-4933 office.

Wendy Dority, Treasurer; Santa Fe; 988-3841 home.

Iris David, Corresponding Secretary; Santa Fe; 982-3794 home.

All will use the Society's box for mail: P.O. Box 5917, Santa Fe 87502.

Committee Chairs

Anna Deardorff (Santa Fe, 983-8363) will head the Newsletter Committee; mail can go to Box 5917.

Dorothy DeWitt was re-appointed Membership Committee head; her address is on p. 1.

Fairley Barnes continues as Conservation Chair until March, when Roger Peterson (Box 5917) will take the position.

Volunteers?

Corresponding members of the Newsletter Committee for localities other than Santa Fe and Los Alamos would help balance output! The Conservation Committee would welcome additional members, too.

Santa Fe Chapter

Anna Deardorff is President of Santa Fe Chapter for 1981; Wendy Dority is Treasurer and Carol Dimeff, Secretary. Their home phone numbers are, respectively, 983-8363, 988-3841, and 471-8158.

Anna Deardorff somehow talked David Deardorff into chairing the Program Committee; his office phone is 983-1548. Bette Vaninetti (988-4830) and Sam Hitt (988-9126) are committee members. They would be pleased to hear suggestions.

New Members

Among those joining the Native Plant Society in recent weeks are Philip Duesing, Elizabeth Fuller, Lois Hosack, and John Turnbull of Santa Fe; Richard Spellenberg of Las Cruces; W. H. Moir of Rodeo; S. Martin and M. Steinkamp of Ft. Collins, Colorado; and Warren Wagner of St. Louis, Missouri.

HERBARIA

A herbarium is a collection of dried plants. Once herbalists' (= physicians') pharmacopoeias, herbaria in this century are mainly reference collections documenting the flora, aiding in plant identification, or serving research in classification. For vascular plants world-wide standardization has developed, for instance mounting sheets that measure 11.5 x 16.5 inches.

Though New Mexico probably has dozens of herbaria, only three are listed in the international Index Herbariorum: at UNM, NMSU, and WNMU. Unlisted are ones like those of Soil Conservation Service and Forest Service in Albuquerque, with a few hundred or few thousand specimens for identification.

UNM has 80,000 specimens accessioned and many more waiting in line; about 95% are New Mexican. William Martin (Dept. of Biology) is in charge. An Ethnobotanical Section was added last year. Theses, contract studies, and student projects add to the collection and make possible such giant products as C. R. Hutchins' Flora of the White Mountain Area... and Martin's and Hutchins' A Flora of New Mexico.

New Mexico State's herbarium started with E. O. Wooton's work around 1890. Richard Spellenberg (Dept. of Biology) is in charge of the 50,000 specimens, about half New Mexican. Spellenberg has published on several groups and written the Audubon Society's Field Guide to North American Wildflowers--Western; current interests include Dalea and Nyctaginaceae. Other professionals working out of the herbarium are Max Dunford, Tom Todsen, Will Moir, and Kelly Allred, and graduate students.

Western New Mexico University's herbarium was begun by and is curated by Biology Department Chairman Dale Zimmerman. The collection now contains about 9000 specimens, mostly from southwestern New Mexico and adjacent Arizona. Ornithologist Zimmerman's second career in botany includes studies of Cactaceae and of the Guadalupe Canyon flora.

These herbaria, our centers of floristic learning, generally welcome participation by serious amateurs. New Mexico is still among the least-known states botanically.

LAND OF HONEY

Plant gums come out soft and tacky but dry hard and brittle. Unlike resins they are soluble in water but not in alcohol. Cherry, peach, and plum are big producers. Gum arabic comes from the African Acacia senegal. Chicle--chewing gum--comes from Manilikara zapotilla (Sapotaceae), a tropical tree not tappable until age 70, according to the Love a Senior Campaign. Also chewable is the gum of our one sapotaceous plant, Bumelia lanuginosa; but only half a dozen ranch families in southern Hidalgo County have the pleasure of its company. Less obnoxious uses of gums include mucilage, bases for medicinal mixes, ink, stationery, and matches.

New Mexico's--indeed, the nation's--main gum trees are honey mesquite, on our eastern plains from Union to Torrance and Eddy Counties, and western honey mesquite, from Sierra and Otero Counties southwestward. Gum exudes from branches and trunks in worm-shaped or irregular squidges. Forbes in 1895 (Arizona Agr. Expt. Stn. Bul. 13) reported that at that time 1200 pounds per year were being harvested in Texas alone.

Dried mesquite gum yields 50% arabinose and 25% galactose (both are sugars) and lesser amounts of monomethylglucuronic acid, protein, and ash, mostly calcium. In life these components plus water are together in large, complex polysaccharide molecules.

C. Greenwood and P. Morey of Texas Tech University are looking at the physiology and anatomy of "Gummosis in honey mesquite," Botanical Gazette 140: 32-38. They find that the colorless to amber mesquite gums come from the phloem (bark), whereas darker brown gum comes from the wood. In their quest for industrial arabinose they get some increase in production by applying Ethephon or 2,4,5-T. Beating, rock pelting, abrading, filing, skinning, and acid burning also induce gum cavities in wood, apparently by wounding the cambium. The phloem shrugs off such sadism.

Greenwood and Morey's research is supported by Tech's Noxious Brush and Weed Control Research Program, a good home for any mesquite these days (though once mesquite pods were a mainstay of Indian existence). But as Emerson said, "What is a weed? A plant whose virtues have not yet been discovered."

Left: honey mesquite. From Dayton et al., 1937, Range Plant Handbook, Forest Service, USDA.

THOSE MESQUITE NAMES

Prosopis juliflora is out; Prosopis glandulosa is in. In an important 1976 work, the late Arturo Burkart tells us that juliflora belongs to a coastal Caribbean species. Ours are P. glandulosa var. glandulosa, honey mesquite; P. glandulosa var. torreyana, western honey mesquite; P. velutina, velvet mesquite, and P. pubescens, screwbean or tornillo.

The honey mesquites are discussed above. Dubiously distinct velvet mesquite is in Hidalgo, Grant, and southwestern Catron Counties. Screwbean mesquite, with its coiled pods, is in southwestern New Mexico north to Torrance County.

--R.S.P.

NAMING NUTS

Mallow genera split on Tuesdays; asters shift generic names on Saturdays; and long-forgotten older names like Pseudotsuga menziesii have right-of-way any day of the week.

But pinyon, beloved state tree, is pinyon, always and forever and unambiguously the edible nut pine Pinus edulis.

Well, not quite. In fact P. edulis fares fairly well against the name changers. From 1848 the species was left in peace for 53 years; but then Marcus Jones formalized a growing suspicion that the pinyons were merely varieties by reducing it to Pinus monophylla var. edulis. John Small treated it as a species again, but in 1903 moved it to a pinyon genus, Caryopitys. Andreas Voss in Berlin made it a variety of Pinus cembroides in 1904. Writers in the following decades felt free to follow any of these views.

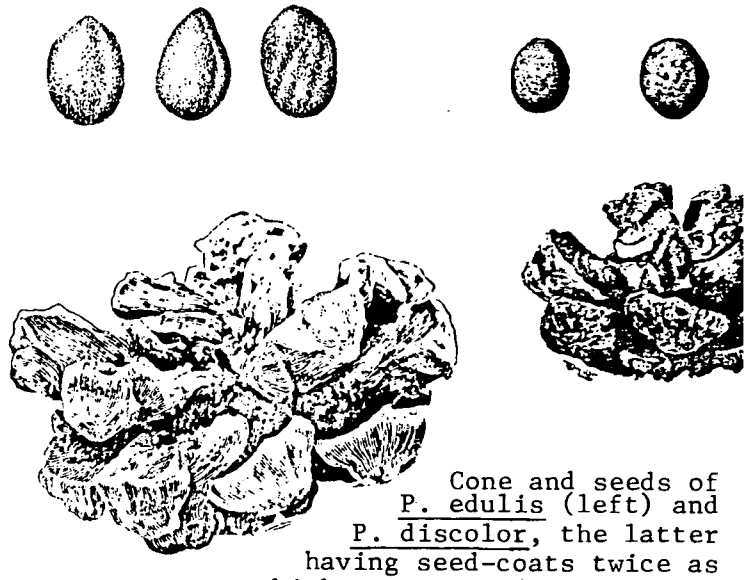
These vicissitudes are as nothing to George G. Fogg's attempted raids in 1966: he split P. edulis into P. monophylla subsp. diphylla, P. monophylla subsp. edulis, and the latter's supposed hybrid with P. cembroides, P. X eduloides. He thought the hybrid to be the common pinyon of most of New Mexico, however far from parental P. cembroides.

All these changes are now ignored. The state tree rests peacefully as Pinus edulis, just as George Engelmann named it in Wislizenus's Memoir of a Tour in Northern Mexico in 1848.

But New Mexico has two other pinyons, and they are not at peace.

Border pinyon ("Mexican pinyon") is the nut pine of most of Hidalgo County, and mixes with others in parts of Grant County, for instance near the San Francisco River. Most of its life it has been called P. cembroides, a species typified far south in Mexico. Then in 1968 Forest Service dendrologist Elbert Little, in a moment of (for him) wildness, distinguished border pinyon from central Mexican pinyon as P. cembroides var. bicolor. Among other differences, border pinyon has its needles in 3's, whereas its southern counterpart has some 2's and some 3's in every tree. Colorado's Dana Bailey and Frank Hawksworth thought about this a few years (uncharacteristically, since their splitting wedges are usually ready at a moment's notice) and then in 1979, when pinyon names were erupting dangerously --une jeune française named Robert started naming species for (one surmises) her boyfriend Jean--they appeared in an "expeditious" journal with the news that P. cembroides var. bicolor is really P. discolor, new species.

But the September of their announcement also saw publication of Elbert Little's immediately and justifiably prestigious Checklist of United States Trees, which moved in the opposite direction: he gave up his 1968 distinctions and reduced his own variety bicolor to synonymy as plain P. cembroides. The battle is joined, a traditional lumper-vs.-splitter confrontation, and only time will tell whose name will win.



Cone and seeds of P. edulis (left) and P. discolor, the latter having seed-coats twice as thick. From Sudworth, 1917.

And so too our third pinyon, characterized by needles mostly in "groups" of one. This pine is not common in New Mexico: it is pretty well restricted to the Florida Mountains of Luna County, scattered locations in Grant County, especially in the Mule Mountains and the Big Burros, and southwestern Catron County, for instance at Sheridan Ridge.

The taxonomic question, with long-term

support for each side, is a delicate one: is this pine derived from Pinus edulis straightforwardly, or is it derived from P. edulis by way of hybridization with its own earlier-derived Great Basin offspring, P. monophylla? Not much difference there, one might say. But in the first hypothesis, monophylly (one leafness) arose twice; in the second, once.

And the names come out differently. In the first the tree becomes P. edulis var. fallax Little (1968); in the second, it may be called P. monophylla according to Ronald Lanner (1974), or it could be given an "X" (hybrid) name. Or perhaps, as in Little's 1979 Checklist, it would be just P. edulis again.

Select positions from these controversies and you can name 99.9% of New Mexico's pinyons by counting to three: P. edulis var. fallax needles are in 1's, P. edulis var. edulis in 2's, and P. discolor in 3's. The classification does not depend on needle number, however, and minor number variants may be ignored. For instance small clusters of pinyons on Los Cerrillos of Santa Fe County, with many needles in 3's, are simply edulis with no resemblance in other ways to P. discolor.

One who wishes to count to one, two, and three all in the same place may visit Tillie Hall Canyon of the Mule Mountains, hard by the Arizona border. Does anyone know of other localities where all three pinyons occur naturally?

-R.S.P.

TOUGH LICHENS

Lichens are among the first organisms to succumb to SO_2 and hence are sensitive air pollution indicators. It was therefore a surprise that Janet Marsh and Thomas Nash's study, Lichens in Relation to the Four Corners Power Plant in New Mexico (The Bryologist 82: 20-28), recently showed our Farmington-area lichens, some 159 species in 40 genera, to be doing quite well. It seems that moisture, too, is needed for serious damage--and that's in short supply. We'll just have to watch for the smog ourselves.

TOM TODSEN'S PENNYROYAL

Hedeoma todsenii Irving, to be protected as an endangered species, is one of several plants honoring Native Plant Society member Thomas K. Todsen of Las Cruces. A former official of White Sands Missile Range, he still tromps the Range, especially its San Andres Mountains, exploring for plants, snails, fossils, and whatever other excitement that formidable landscape offers.

Dr. Todsen began his career as an organic chemist with sidelines in microbiology and math. But his botanical interests germinated early, especially orchids--regarding which he is New Mexico's expert, and has described a new variety and reported several species new to the state. Recently he finished a plant survey for the State Heritage Program in the Peloncillo Mountains' new Research Natural Area near Rodeo.

He found his pennyroyal in Rhodes Canyon on the Missile Range (Sierra County) in 1978, all 750 or so plants of it. While most pennyroyals have small purple to pink flowers, this one is a showy orange with corolla to 35 mm. The lower lip is streaked with red, and the anthers exserted.

Hedeoma todsenii by D. Sutherland, from R. Irving's description in Madroño vol. 26, 1979. By permission.

The new species was described by Robert Irving, who states that this is the fifth in a group of closely related endemics on limestone or gypsum in New Mexico, Texas, and Nuevo León. Hedeoma apiculatum is the second New Mexican species, known in a few canyons of the Guadalupe Mountains in Eddy County and adjacent Texas; its corollas are lavender, to 20 mm long. It too is "proposed endangered" with only about 950 plants known, mostly near Park hiking trails.

--I.D. & R.S.P.

SNOW-LOVERS

"Alpine tundra in summer:" no more need be said to evoke flowery carpets and grand vistas. Extra spice comes with the thought of being where few have been.

Such was a walk in early August of 1979 with student friends Joe and Wendy. Our tundra was New Mexico's second largest but least visited: the Big Costilla Peak area of the Sangre de Cristos, just south of the Colorado line. On this side of State Line Peak 6600 acres (mostly in a 1.5 x 6.5 mile rectangle) are above tree line--about a fourth of New Mexico's tundra acreage.

Several long-eared owls entertained us with their conversational yapping on our way up. When we reached tundra at 12000 feet next morning we were in fog. Ptarmigan appeared and disappeared in our little see-circles amid the moving mists. I led us badly astray and only Wendy's intuitions got us to the valley near El Vintrero, where islands of krummholz spruce provided two nights of habitat for us (as well as for a handsome cream-colored hawk that we never did name).

Two days of good weather and we explored much of the tundra and some spruce and bristlecone pine stands below. We'd seen brighter alpine gardens; most of these plants were pretty well dried out. But some still bloomed, especially near snowfields tunneled by tumbling streams. On the largest snowfield reclined 28 elk cows and calves, perhaps escaping a few insects by their choice of bedding material.

Sedges and grasses such as spike oats covered most of the gently hilly area. A few species have probably multiplied during decades of livestock use at the expense of a more varied flora. But there was variety too, in odd corners here and there: for instance snow-lover, Chionophila jamesii (a low, white-flowered Penstemon but for minor distinctions), a plant hitherto known only in Colorado and Wyoming.

Steep slopes are covered with the massively rooted alpine clovers, Trifolium dasyphyllum and T. nanum. Polygonum (or Bistorta) viviparum is abundant. Other late bloomers that impressed me enough for sample snatching were moss campion, alpine kittentails, mountain avens; also Oreoxis bakeri, Potentilla concinna, Saxifraga flagellaris.

Just as we left the tundra to return to our low lives, Joe spotted a snowshoe hare. We stood. It came. We hardly breathed as the young, already whitening hare approached. It finally scraped Wendy's and my boots with those big incisors, and tugged at her blue jeans. After several minutes of this we moved a little to search our pockets for Lepus delectables--and it scampered, without ever saying what it had in mind.

The area described is private. Permission to enter must be obtained from the Rio Costilla Cooperative Livestock Association, Costilla 87524. There is a two-track road to the high country; we did not ask whether permission to use it might be granted.

--Roger Peterson

Ed. note: May this be first of a series on plantiful places? State records and hare-brained hares are not needed; just the memory of a pleasant time with some New Mexico plants that you would share with us.

Snow-lover, Chionophila jamesii. From William A. Weber, Rocky Mountain Flora, Colo. Assoc. Univ. Press, by permission.

HISTORY AND ROCKS

Two series of outings--"historical hikes" with the National Park Service and geologic field trips with professional guidance--are proposed by the Sierra Club, beginning this spring. They're based in Santa Fe but are likely to spread at least as far as Albuquerque. Persons interested in some serious but enjoyable learning should watch the San Santa Fe Sierra Club Bulletin or contact John Turnbull, 982-9329, evenings.

WE WENT WILD

New Mexico got its National Forest Wilderness Bill--609,000 acres' worth. Thanks to Rep. John Seiberling and many others, that's a considerable increase over earlier versions. Our congressional delegation seemed to want a bill mainly to release as many acres as possible from wilderness consideration, and more than a million were opened to developments such as timber roads.

The controversial areas of special interest to the Native Plant Society are among neither the wilderness nor the released acreage but in a third category of 117,500 acres under "further planning." These six areas are Guadalupe Escarpment with its limestone endemics, Bunk Robinson and Whitmire Canyon with their cacti and Sierra Madrean vegetation; Hell Hole and Lower San Francisco with Sonoran-riparian vegetation, and Columbine-Hondo's alpine tundra.

The new wilderness acreage brings to 1.5 million the total for New Mexico, or 1.9% of the state. About 1.4 million of that is Forest Service-administered; 56,400 are Park Service areas, and 39,400 Fish and Wildlife Service. Present wilderness study areas include not only the above-mentioned 117,500 acres but also a million acres managed by the Bureau of Land Management.

New wildernesses created for us in December by the lame-duck Congress are, from north to south, Cruces Basin and Latir Peak (Carson Nat. Forest), Dome (Santa Fe N.F. next to Bandelier Wilderness), Withington and Apache Kid (Cibola N.F.), Capitan (Lincoln N.F.), Blue Range (Apache N.F.), and at 211,300 acres by far the largest, Aldo Leopold (Gila N.F.). Another 226,500 acres of the 609,000 total are additions to existing wildernesses: Wheeler Peak, Pecos, White Mountains, and (mostly) Gila.

DON'T JUST BOSQUE!

Preserving Rio Grande bosque habitats--for wildlife and for people--is the goal of the Bosque del Rio Grande Nature Preserve Society. A new nature center is the group's most recent production; a docent program is to be organized. If interested in the Society contact them at 2828 Candelaria Rd, N.W., Albuquerque 87107.

TO KEY OR NOT TO KEY

We are told that the best way to identify plants is to use a key. For the professional the key is a familiar tool, but to the layman it is something else. More than anything it presents a challenge. It opens the door to a vocabulary of new and strange words, and an area of rather precise choices, as well as a nod at the metric system.

Much of the plant terminology stems from Latin and Greek words. All of these are used to describe in detail the different parts of a plant. For example, a leaf may be cordate (heart-shaped); cor is the Latin word for heart. As you go through the steps of the key, your choices must be more than just approximate or you'll wind up in the wrong place; all details must fit. Centimeters and millimeters are the two most commonly used measurements; 2.54 cm = 1 inch or 25.4 mm = 1 inch. So that's not too difficult.

If you should decide to investigate the mysteries of a plant key, stick with it and don't give up. It will take time to learn the terminology but a little patience and endurance will pay off. It will add tremendously to your curiosity and enjoyment of our plant world--especially when we finally have in hand the forthcoming Flora of New Mexico.

--Iris David

ASTRAGALING ALONG

Milk-vetches comprise a genus, Astragalus, of some 2000 species, about 100 in New Mexico--and going up. Some accumulate selenium and are thereby locoweeds. The genus is not for novice users of identification keys. On the other hand, for those who with a bible can handle anything, there is a bible: Rupert C. Barneby's 1964 Atlas of North American Astragalus, 1188 succinct pages.

Latest Astragalexcitement for New Mexico is rediscovery of A. humillimus, last (and only) previously noted in 1875 on the Ute Reservation in Colorado. Mr. Barneby's minions are stalking the "Mancos milkvetch" along the Hogback of the Navajo Reservation, San Juan Co. Mr. Barneby does not fail us for new species, either. In Dragma Hippomanicum IV (Brittonia 31: 459-463) he presents us with Astragalus wittmannii from the Levy exit of I-25 north of Wagon Mound, Mora County. Pick your exit; you too can play!

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