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## NEW RECORDS FOR *MONOTROPA HYPOPITHYS* (ERICACEAE) FROM COLORADO

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ABSTRACT.—*Monotropa hypopithys* L., rarely collected in Colorado, was taken five times during 1984. Coupled with previous collections, it is now known from 10 Colorado counties. The cool, moist August of 1984 may have contributed to its apparent ubiquity.



Fig. 1. Photo: *Monotropa hypopithys* L. in habitat.

The saprophytic plant *Monotropa hypopithys* L. (Ericaceae), popularly known as pinesap (Fig. 1), has been described as rare in Colorado (Harrington 1954, Weber 1976). The Colorado Natural Heritage Inventory (Peterson 1984) maintains it on the list of Plant Species of Special Concern as a plant that may be in danger of extirpation from Colorado because of the scarcity of occurrence. A survey of three regional herbaria shows a paucity of specimens (four at University of Wyoming, two at Colorado State University, and three at

University of Colorado), generally supporting its characterization as a rare plant.

During the summer of 1984, *M. hypopithys* was collected by us in five Colorado counties: Routt, Jackson, Douglas, Mineral, and Las Animas. These new observations, coupled with our previous sightings and collections and the existing herbarium specimens, show that *M. hypopithys* is probably more widespread than previously thought. As shown on the map (Fig. 2), it is now known from 10 counties in Colorado. In addition, B. E. Nel-

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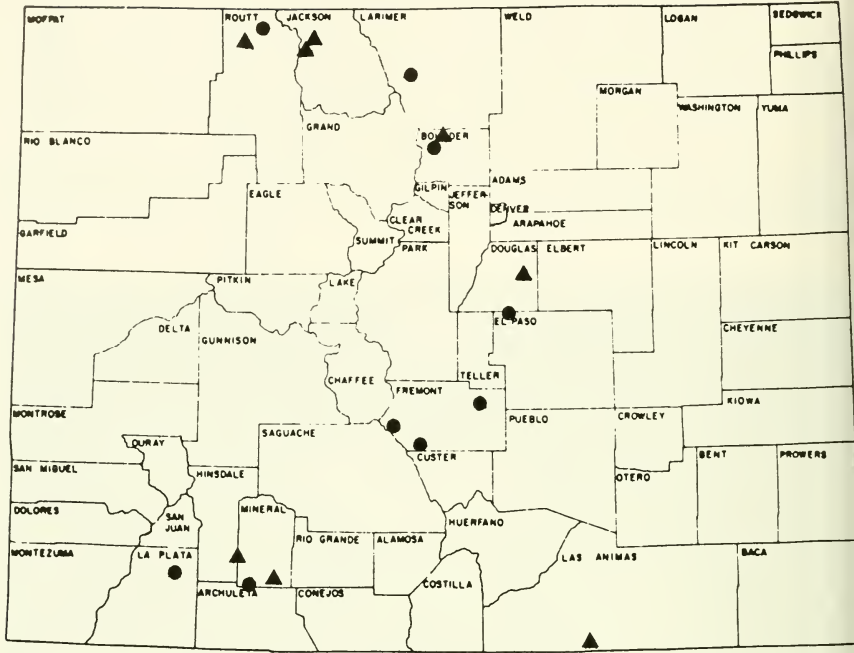


Fig. 2. Colorado distribution of *Monotropa hypopithys* L.:

- Herbarium Specimens (COLO, CS, RM) (Table 1);
- ▲ author's collections and observations (Table 2).

son of the Rocky Mountain Herbarium at University of Wyoming concurs that it was much more widespread during 1984; he observed it in the Medicine Bow Mountains of southern Wyoming.

The details on existing herbarium specimens are presented in Table 1; the details of our recent observations are tabulated as Table 2. All specimens were deposited at the Kathryn Kalmbach Herbarium of Denver Botanic Gardens and/or University of Colorado—Boulder. Photographs are in our collections.

Habitat for *M. hypopithys* is in damp coniferous woods where there is little understorey vegetation, but rather forest duff composed of rotting logs, twigs, and conifer needles. Usually such a habitat is found on a north-facing slope at high elevation. Most of our collection or observation sites follow this characterization. The 1983 and 1984 Jackson County sites, the 1974 and 1979 Boulder County sites, the

1984 Las Animas County site, and the 1980 Hinsdale County site were all on moist, heavily wooded, northeast-, north-, or northwest-facing slopes above 8,000 ft (2,400 m). The 1984 Mineral County site was on a steep, densely forested, but southwest-facing slope. The 1984 Routt County site was on flat ground in open woods, with a number of rotting logs. This site was adjacent to a national forest campground and presumably much of the deadwood had been gathered as firewood contributing to the openness. However, the 1984 Douglas County site was a dry but heavily wooded hillside at 6,800 ft (2,070 m) with an easterly exposure—but the most likely habitat compared with the surrounding area.

The plant was associated with pinedrop (*Pterospora andromedea* Nutt.), another ericad, and with coralroot orchids (*Corallorhiza* sp.), which are usually in fruit when *M. hypopithys* is at its prime. At the Jackson County sites the plants were associated with *Rhodo*

TABLE 1. Herbarium specimens of *Monotropa hypopithys* L. (CS, RM, COLO).

County	Location	Date	Collector and accession number
Douglas or El Paso*	Palmer Lake	- August 1914	Bethel (CS33885)
Larimer	East Twin Lake	3 August 1974	Kopp (CS26043)
Mineral or Archuleta*	N of Pagosa Springs	14 August 1917	Payson (RM101307)
Fremont	Sec 31 T47N R12E	20 August 1938	Lemmon (RM-USFS)
Fremont	Sec 13 T47N R10E	25 August 1960	Gierisch (RM-USFS)
La Plata	Sec 30 T37N R6W	25 July 1934	Loughridge (RM-USFS)
Fremont	Phantom Canyon	21 August 1971	Howard (COLO256444)
Boulder	Sec 23 T2N R73W	28 July 1966	Clark & Arp (COLO214312)
Routt	Big Red Park	7 September 1969	Stevenson (COLO244531)

\*County of collection not listed on herbarium sheet.

TABLE 2. Collections and observations of *Monotropa hypopithys* L.

County	Location	Date	Collector
Douglas	Castlewood Canyon	26 July 1984	WFJ (specimen)
Jackson	T9N R82W Sec 14/15	4 August 1984	WFJ (specimen)
Las Animas	NW of Lake Dorothy	25 August 1984	WFJ (specimen)
Routt	T10N R86W Sec 11	2 September 1984	WFJ (specimen)
Boulder	West of Peaceful Valley	3 August 1974	WFJ (photos)
		5 August 1979	
Jackson	Helena-Grizzly Trail near Bear Creek	16 August 1983	LY (specimen)
Mineral	T37N R1E Sec 8	25 August 1984	LY & VR (specimen)
Hinsdale	Piedra River T37N R2W Sec 5	18 August 1980	LY (photo)

*dendron albiflorum* Hooker; at the Mineral County site with *Goodyera oblongifolia* Raf. and *Pyrola picta* Smith ex Rees; and at the Las Animas County site with *Goodyera repens* (L.) R. Brown, *G. oblongifolia*, and *Coralorhiza* sp.

Described by Harrington as "pink or reddish, sometimes yellowish," all degrees of coloration from red through pink to a creamy yellow have been noted by us. In fact, such variations can be seen at a single site, in plants only a few feet apart.

The reason for the seemingly ubiquitous nature of *M. hypopithys* during 1984 is not known. Perhaps our extensive travel in Colorado during 1984 had something to do with it. It may be that the atypically moist, cool August of 1984 permitted the plants to stay fresher longer than normal, leading to an apparent but not necessarily real increase in the population. As a saprophyte, the plant is quite

fleshy. In a warmer, dryer August, *M. hypopithys* changes from red or yellow to crispy-brown rather quickly and effectively disappears into the featureless brown duff of the forest floor.

Whatever the reason for its widespread appearance during 1984, it seems clear that the plant isn't really rare (only during some years), but occurs in scattered localities in many forested mountainous counties.

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