Horseshoe Milkvetch Fact Sheet
(*Astragalus equisolensis*)

Habitat Description

Horseshoe milkvetch grows on river terraces overlying the Duchesne River Formation, or in cracks and crevices forming in the Duchesne River Formation regolith, or in soils weathered directly from the Duchesne River Formation. The preferred soils are sandy-gravelly or sandy-silty; the soil surface is sometimes cobbly. Elevation for the Utah population is 4600-5200 ft amsl.

Species Description

Horseshoe milkvetch is a perennial herb, acaulescent or subacaulescent, 5 to 15 cm tall, arising from a branching caudex. The herbage is pubescent, the pubescence is appressed, simple and basifixed (as opposed to dolabriform, or pick-shaped—i.e., with two divaricate hair cells). The stipules are 2 to 5 mm long; the leaves are 1.5 to 9 cm long; the leaflets are 3-12 mm long × 1.5-5 mm wide, elliptic, oblanceolate to obovate, acute to obtuse, strigose on both sides, 5 to 17 per plant. The peduncles are erect, 2 to 9 cm long; the racemes are 4 to 13 flowered; the flowers are ascending or spreading at anthesis. The calyx is 6 to 8.5 mm long; the calyx tube is 4.5 to 6 mm long, cylindric, strigose, toothed above; the petals are 12 to 16 mm long, purplish. The pods are declined to deflexed, sessile or stipitate, obliquely ovoid or lance-ellipsoid, lunately curved, dorsiventrally compressed, constricted distally at the beak, laterally compressed, incurved, 10 to 14 mm long, 3.5 to 6.5 mm wide, hirsute, unilocular (Welsh *et al.*, 2003).

Associated species can include

Sagebrush, shadscale, horsebrush, (*Artemisia tridentata, Atriplex confertifolia, Tetradymia spinosa,* respectively). Other associates include *Artemisia nova, Asclepias crypotceras, Ephedra torreyana, Grayia spinosa, Gutierrezia sarothrae, Opuntia polyacantha, Pediocactus simpsonii, Sarcobatus vermiculatus, Scabrethia scabra, Tetradymia nuttallii.*

Field Diagnostic

At a glance, Horseshoe milkvetch is a small herbaceous perennial, best recognized when in flower, with its long leafless peduncle bearing 4 to 13 purplish pea-type flowers 12 to 16 mm long—or in fruit, with its seed pods unilocular, covered with long soft hairs, and hanging down overall but curving upward at the tip. When the plant is not in flower or in fruit, identification is problematic and the plant is likely to be confused with cicada milkvetch (*Astragalus chamaeleuce*) or Green River milkvetch (*Astragalus pubentissimus*). Cicada milkvetch bears dolabriform hairs—i.e., pick-shaped, with the two hair cells spreading apart from each other at 180˚—as opposed to the simple basifixed hair cells of Horseshoe milkvetch. The overall habit of Green River milkvetch is more distinctly caulescent, or characterized by a distinct main stem—as opposed to the more acaulescent habit of Horseshoe milkvetch.

Phenology and Reproductive Biology

Phenology and reproduction are poorly known in Horseshoe milkvetch. As with most angiosperms, phenological stages vary according to seasonal temperature, precipitation and insolation. Usually, anthesis is in April and May, and fruit maturation / seed set is in early- to mid-summer. No special pollination vectors are known; most papilionaceous flowers like Horseshoe milkvetch are bee-pollinated. No special dispersal vectors are known; wind is assumed (Torti, undated).

Current Distribution and Populations

Horseshoe milkvetch has an extremely limited distribution. The main population occurs in a 9000-acre region immediately east of the Horseshoe Bend of the Green River, 10-12 miles south of Vernal in Uintah County, UT. A small outlying population occurs inside the Horseshoe Bend west of the Green River in T6S R21E SEC26 NW. A disjunct population has recently been found 200 miles away near Gateway in Mesa County, western Colorado, on alluvial terraces above the Dolores River.