REGION 2 SENSITIVE SPECIES EVALUATION FORM

Species: **Ripley's milkvetch** (*Astragalus ripleyi* Barneby) ASRI2 [1]

Criteria	Rank	Rationale	Literature Citations
1 Distribution within R2	A	*Astragalus ripleyi* is commonly described as a narrow endemic species. The Region Two known occurrence is only from Conejos County, Colorado. It is found along the volcanic rim in the San Luis Valley and extends south into New Mexico. Confidence in Rank **High** ~~or Medium or Low~~	• CNHP 2001a • CNHP 2001b • Lightfoot 1995 • Naumann 1990
2 Distribution outside R2	B	Outside of Region 2, this species is known to occur in only two counties in north-central New Mexico; Taos and Rio Arriba. Confidence in Rank **High** ~~or Medium or Low~~	• Lightfoot 1995 • Naumann 1990 • NMNHP 2001
3 Dispersal Capability	B	The Naumann and Lightfoot reports acknowledge that little is known about the reproductive biology of this species. Fruit production per flowering individual is positively correlated with moisture. Moisture availability appears to be the most important factor in determining short-term population dynamics, although herbivory plays a secondary role in some cases. Burt feels that this apparently long-lived species has a survival strategy aimed toward maintaining the growth and survival of individuals rather than putting a large effort into yearly reproductive success. It appears that insects and rodents may cache and disperse seed. Overall, the dispersal ability of this plant appears to be low to moderate within suitable habitat. Confidence in Rank ~~High or~~ **Medium** ~~or Low~~	• Burt 1998 • Burt 1999 • Lightfoot 1995 • Naumann 1990
4 Abundance in R2	B	The Colorado Natural Heritage Program database documents at least 6,040 plants (most of this census work has been collected within the last 10 years). These individuals occur in a relatively small geographic area as mentioned in Criteria 1 and 2. Confidence in Rank **High** ~~or Medium or Low~~	• CNHP 2001a

[1] Acronym source – USDA Plants database (http://plants.usda.gov/)

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5 Population Trend in R2	B	There is little historic population baseline data for this species, so it is not possible to accurately display trend. This plant was first discovered in 1935, and subsequently described as a new species by Rupert Barneby in 1952. Naumann speculated that this species might be declining, but said this needed to be investigated. There have never been any documented demographic studies until very recently. Burt suspects that this plant is similar to other long-lived plant species that may go dormant for one or more years. Environmental conditions, especially moisture, positively affect population parameters, especially rate of increase and reproductive output. There is no current evidence to suggest this species is declining. Confidence in Rank ~~High or~~ **Medium** ~~or Low~~	• Burt 1999 • Lightfoot 1995 • Naumann 1990 • Weber 1955
6 Habitat Trend in R2	B	This plant occurs on volcanic-derived soils in Arizona fescue grasslands, open ponderosa pine, open mixed conifer, or open pinyon-juniper woodlands. It occurs on Forest Service, Bureau of Land Management, State, and private lands. The entire range of this species (Region 2 and Region 3) is approximately 65 miles long by 15 miles wide. I suspect habitat for this plant is relatively static (i.e., it is neither shrinking nor expanding in any grossly measurable way). I do not have any clear evidence to indicate a trend either way at this point. Over the last 50 years, management of this species habitat has probably allowed ecological status to gradually improve. On the other hand, Naumann suggested that *Astragalus ripleyi* habitat may need some level of disturbance to remain as suitable habitat (i.e., fire or herbivory within the habitat may keep ecological status to a level that is more conducive to *A. ripleyi* expansion). These are still unanswered questions at this point. Confidence in Rank ~~High or~~ **Medium** ~~or Low~~	• CNHP 2001a • Lightfoot 1995 • Naumann 1990
7 Habitat Vulnerability or Modification	B	Populations on Federal ownership are maintained in a relatively natural setting (i.e., there is no widespread threat of severe habitat alteration). Burt feels that the greatest threat to some populations may be erosion on ecologically degraded sites. Earlier reports by Naumann and Lightfoot suggested that herbivory (both wild and domestic) may be detrimental to this species. However, Burt feels that herbivory does not appear to strongly influence populations, except to reduce reproductive output under high intensity use. Other land use practices are relatively benign. Generally, the habitat is not cut for timber, it is not mined, new roads are not being constructed, and there are no future plans to severely alter the habitat. We do not know what impact fire suppression may be having. Confidence in Rank ~~High or~~ **Medium** ~~or Low~~	• Burt 1999 • Lightfoot 1995 • Naumann 1990

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8 Life History and Demographics	B	*Astragalus ripleyi* is a perennial forb and it does not follow a linear progression from seedling to non-reproductive individual to reproductive individual (see attached life history graph by Burt). Plants that are reproductive one year may be very small juveniles the next. Burt feels that reproductive effort increases with good growing conditions, mostly high moisture. In poor years, plants do not put as much effort into reproduction. Many plants will emerge and put out flowering stems, but then the entire plant may dry up. These plants perhaps did not have adequate resources to continue growth and reproduction that year and so they pull their resources into the roots and wait for another year. Burt feels that this species depends on the plant's long-term survival ability (i.e., by putting most resources into the root system) rather than short-term reproduction (i.e., it puts less emphasis on current reproduction and growth). Burt's preliminary greenhouse observations indicate that seed germination exceeds 80% for scarified seeds. Seeds germinate in one week under continuously moist conditions. Seedlings require ample daily water or they dry up and do not revive. Of nearly 80 germinated seeds in the greenhouse, only two lasted over three weeks. Lightfoot mentioned germination tests results by Dr. Susan Martin (Ag. Res. Serv.) that were somewhat lower. Burt indicated that a bumblebee apparently pollinates this plant. Insects, rodents, and mammals have been observed eating *A. ripleyi*. Confidence in Rank ~~High or~~ **Medium** ~~or Low~~	• Burt 1998 • Burt 1999 • Lightfoot 1995

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ATTACHMENT SS2

National Forests in the Rocky Mountain Region where species is KNOWN (K) or LIKELY (L)[2] to occur:

Colorado NF/NG	**Known**	**Likely**	**Kansas NF/NG**	**Known**	**Likely**	**Nebraska NF/NG**	**Known**	**Likely**	**South Dakota NF/NG**	**Known**	**Likely**	**Wyoming NF/NG**	**Known**	**Likely**
Arapaho-Roosevelt NF			Cimmaron NG			Samuel R.McKelvie NF			Black Hills NF			Shoshone NF		
White River NF						Halsey NF			Buffalo Gap NG			Bighorn NF		
Routt NF						Nebraska NF			Ft. Pierre NG			Black Hills NF		
Grand Mesa, Uncompahgre, Gunnison NF						Ogalala NG						Medicine Bow NF		
San Juan NF												Thunder Basin NG		
Rio Grande NF	1													
Pike-San Isabel NF														
Comanche NG														

1 – Source: CNHP 2001a

[2] Likely is defined as more likely to occur than not occur on the National Forest or Grassland. This generally can be thought of as having a 50% chance or greater of appearing on NFS lands.

Literature Cited

Burt, Julie. 1998. Effects of Grazing and Fire on *Astragalus ripleyi* Barneby – Summary of 1997 Field Work. Unpublished Progress Report on file at the Rio Grande National Forest headquarters, Monte Vista, CO.

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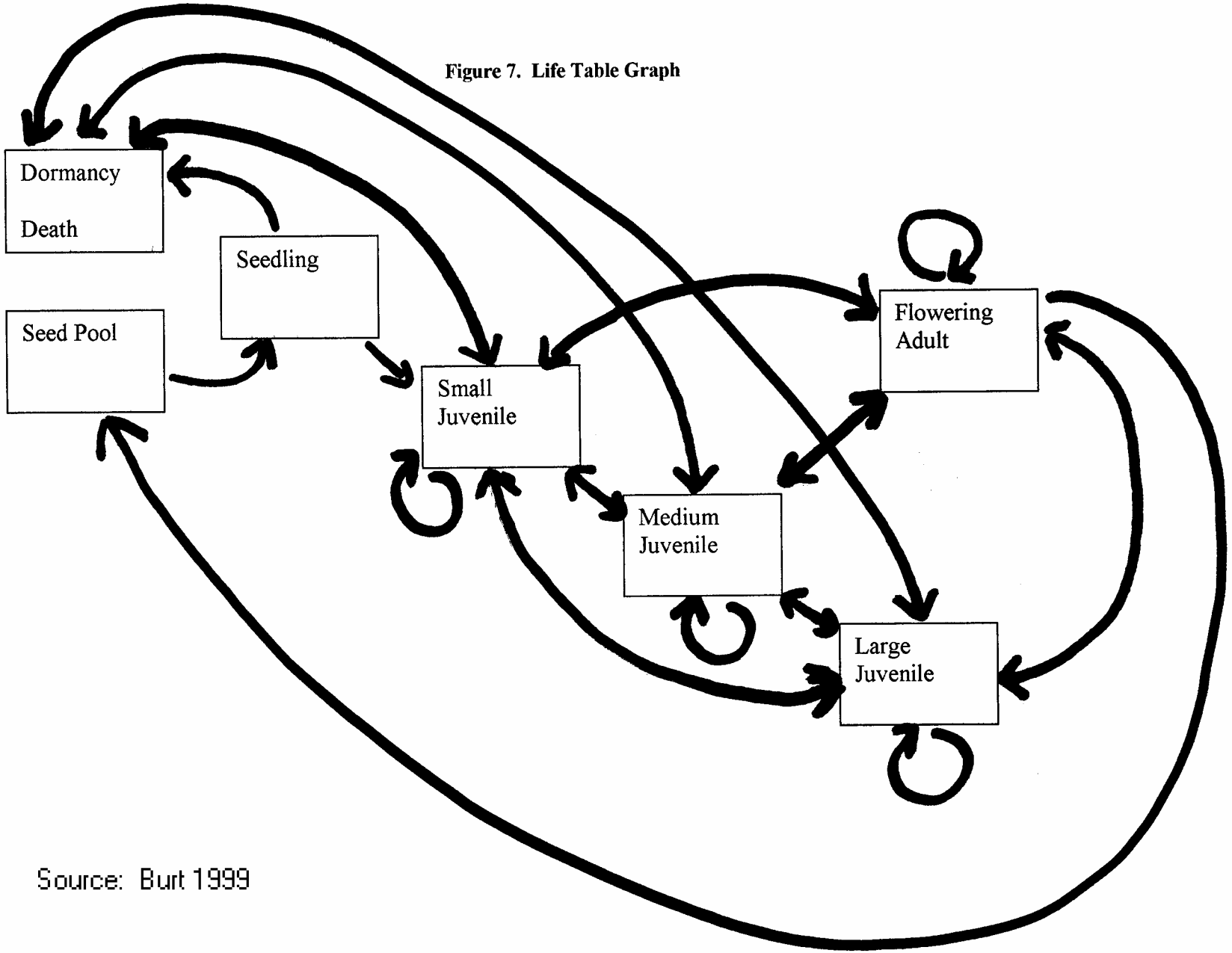
Figure 7. Life Table Graph



Source: Burt 1999