
Peer Review Comments: Proposed Rule for Endangered and Threatened Status for *Chamaecrista lineata* var. *keyensis* (Big Pine Partridge Pea), *Chamaesyce deltoidea* ssp. *serpyllum* (Wedge Spurge), and *Linum arenicola* (Sand Flax), and Threatened Species Status for *Argythamnia blodgettii* (Blodgett's Silverbush). Florida Forest Service, M. Jenkins 20151124

DEPARTMENT OF THE INTERIOR, Fish and Wildlife Service

50 CFR Part 17,[Docket No. FWS–R4–ES–2015–0137];

[4500030113] RIN 1018–AZ95

Endangered and Threatened Wildlife and Plants;

Endangered Species Status

for *Chamaecrista lineata* var. *keyensis* (Big Pine Partridge Pea),

***Chamaesyce deltoidea* ssp. *serpyllum* (Wedge Spurge), and**

***Linum arenicola* (Sand Flax), and Threatened Species**

Status for *Argythamnia blodgettii* (Blodgett's Silverbush)

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Peer Review comments for the three main questions regarding this review:

1) Review all materials provided by USFWS.

All materials were reviewed in September, October and November, 2015.

2) Identify, review, and provide other relevant data apparently not used by us.

There are no additional references suggested to be used by USFWS to treat the species of the Proposed Rule for its purposes but this biologist used the following to cross-examine research done on selected species:

Fairchild Tropical Botanical Garden. *Conservation Action Plan*

Chamaecrista lineata var. *keyensis*. Fairchild Tropical Botanical Garden.

Fairchild Tropical Botanical Garden. *Conservation Action Plan Chamaesyce deltoidea* ssp. *serpyllum* . Fairchild Tropical Botanical Garden.

USFWS. 2012. U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form for *Chamaecrista lineata* var. *keyensis*.

USFWS. 2012. U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form for *Linum arenicola*.

USFWS. 2012. U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form for *Argythamnia blodgettii*.

USFWS. 2012. U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form for *Chamaesyce deltoidea* ssp. *serpyllum*.

Yang, Y. and P. E. Berry. 2012. Phylogenetics of the *Chamaesyce* Clade (Euphorbia, Euphorbiaceae): Reticulate Evolution and Long-distance Dispersal in a Prominent C4 Lineage. *American Journal of Botany*.

3) *Relevance and soundness of data used in the proposal relating to the taxonomy, population models, and supportive biological and ecological information for the species or its habitat under consideration.*

The relevance and soundness of data used is excellent for this Proposed Rule. It is obvious that the data used was compiled with proper regard for each species and the research and restoration efforts that have been conducted over the years by many organizations and individuals to help protect these plants. These efforts were well documented and utilized in the Proposed Rule.

3) Analysis or assumptions of the data used in the proposal.

USFWS may or may not wish to include concise summary on the worldwide distribution of each species' genus and closely related genera and how it relates to each species.

USFWS may or may not wish to address genetic research, or lack thereof, in treating each species and its biology. Not much genetic research has been done on the four species in the Proposed Rule but it may be worthy of noting, even if it is little or none.

Factor D. The Inadequacy of Existing Regulatory Mechanisms.

Even if Federally-listed Candidate, Threatened, or Endangered plants occur on federal land and are afforded federal regulatory protections, these plants can still become extirpated with inadequate management and lack of compassion. It takes a committed staff and involvement from other organizations to have adequate, long-term success maintaining rare plant populations. This is true on all public and private lands where rare plants exist and these plants' needs of prescribed fire, invasive plant and animal removal, genetic research for small, isolated populations, etc., etc. So, while it is true that adequate regulation may come to the plant through listing, inadequate management such as through improper fire or invasive plant management may cause extirpations of populations, even after listing has occurred.

This biologist disagrees with the last sentence on Page 58555 of the Proposed Rule that states there is no regulatory protection for State-listed plants on private lands through FAC 5B-40. There is some regulatory protection and it is well reflected in the first paragraph on the next page (58556).

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence

Management of Roadsides and Disturbed Areas (Page 58557) is a very important factor for the preservation and recovery of these four plant

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species, as well noted in the Proposed Rule. Roadsides, Rights-of-Ways, and disturbed/ruderal habitats now provide habitat for some of the last populations of rare plants because of the open, sunny condition they provide through mowing. Mowing is the very reason that so many fire-adapted rare plant species can exist on the roadsides because mowing mimics fire to some extent and keeps woody shrubs and trees down, like fire does. Populations of rare plants may be extirpated in many areas because of the lack of fire management and thus, increase in competing trees and shrubs that shade out the rare plants. The mowed roadsides may provide the only open habitat left in the area. Removal of mowing will result in the loss of the rare plants because of competing, taller vegetation and increase in shade. An intelligent mowing regime can be a boon for the rare plant species on roadsides and has the potential for being an incredibly effective conservation tool for roadside rare plant species, such as the four species in this Proposed Rule. Mowing the roadside at times that benefit and target rare plants can be highly beneficial. As the Proposed Rule states, there is little research done in this arena and it would help if research was done to show an optimal mowing regime for rare plants on roadsides. It is important for general transportation to have these roadsides mowed, and if the mowing can just be altered some in its timing so as not to affect flowering and fruiting of the target species, then mowing can be very useful in the recovery of the Proposed Rule's four rare plant species.

Environmental Stochasticity (Page 58558) in the form of drought can also affect plants by direct stress, disturbance of ecological processes, and the reduction of needed prescribed fire that ensues from dangerous burning conditions. In a drought situation, competing vegetation such as hardwood tree and shrub species should be removed by hand around individual populations to mimic prescribed fire and maintain an open habitat.

USFWS has done an excellent job presenting the “*Natural Factors (Factor E) Affecting the Continued Existence*” of the Proposed Plants. Other natural, potentially dangerous factors not listed in the Proposed Rule may be too numerous to document but two additional ones are the danger of hybridization with other species of non-native plants and the potential of damage from exotic pest animals, especially recently introduced whiteflies. These are two factors that are especially relevant in the South Florida

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landscape with other rare plant species but may have not been documented as of yet with the four species treated in the Proposed Rule.

3) Whether we have used the best available science in making our proposed determination

The science used to produce the information necessary for Proposed Rule is recent and top-notch, however limited it may be. Most of the science used has been to survey for plants in the field and determine these plants' taxonomy, population distribution and status, and some pollination biology.

Summary comments of this peer review: These four species were covered in their life history and population status very well in the Proposed Rule.