

**2006 Tamarisk Research Conference  
Ft. Collins, CO  
October 3&4, 2006**

**Breakout Session 4: *Tamarix* Distribution and Ecology  
Facilitator & Recorder: Mara Johnson**

**Overview of oral presentations:**

The Distributions and Ecology session consisted of six oral sessions on widely divergent topics. These talks were **Soil nitrogen dynamics in stands of *Populus deltoides* ssp. *wislizenii* and *Tamarix chinensis* with differing flood regimes** by Jennifer Follstad Shah and Cliff N. Dahm; **Evolution of cold hardiness in North American *Tamarix ramosissima*** by Jonathon M. Friedman, James M. Roelle, Julie Roth, and John F. Gaskin; **Modeling invasive species using remote sensing: an example using *Tamarix*** by Tracy Davern; **Tamarisk flowering and seed release phenology in relation to climate and Colorado River hydrography** by Gibney M. Siemion and Lawrence E. Stevens; **Invasion process of tamarisk and Russian olive into Canyon de Chelly National Monument** by Lindsay V. Reynolds; and **Environmental flows for riparian restoration and *Tamarix* management** by Patrick B. Shafroth. It would be useful in future conferences to solicit more presentations on the different topics that were coalesced into this one session. For example, an entire session could focus on GIS and remote sensing applications for tamarisk.

At the breakout session for this session the following topics were discussed:

- A) The current state-of-the-science**
- B) Key gaps in existing knowledge**
- C) Novel and/or cross-disciplinary research opportunities**
- D) Conclusions relevant to policy and/or management decisions**

Following is an informal summary of the discussion on these topics.

**A) The current state-of-the-science**

Due to the diversity of the topics presented and the few numbers of presenters on each topic the group did not synthesize the current state-of-the-science. However, this would be an excellent project to compile a review or synthesis paper on each of the subtopics for this session. Generally, it was discussed that there is some in-depth research on each topic for certain areas; and tamarisk research in general would benefit from more studies in different areas to develop a better understanding of regional variation.

**B) Key gaps in existing knowledge**

Several gaps on basic topics on *Tamarix* spp. **biology** were identified such as the need for more information on:

- seed production (quantity and variability),
- seed dormancy,
- germination,
- reproduction,

- the range of conditions under which it can establish, especially determining the ends of the spectrum,
- regional variation.

Several research gaps and suggestions for the use of **GIS and remote sensing** were presented including:

- use of finer resolution data over a broader geographic range for predicting limits of tamarisk invasion,
- the need to look at scale and sensitivity,
- the need for good ground truth data,
- the need to address the temporal problem with data (e.g. ground data and how good is it until you can't use it anymore),
- still do not have the best signature for tamarisk but need to focus on predicting where it will invade,
- problem about use of empirical models versus process models; if tamarisk is genetically plastic then we would run into problems at the boundaries,
- acknowledge up front that it's a dynamic system.

It was suggested that more research needs to be done on tamarisk dispersal including determining:

- the role birds play in dispersal,
- and seed rain patterns – including the temporal dynamics of it.

At least one presenter also discussed Russian olive, another riparian invasive species. It was suggested that more research needs to be done on this species and may be done in combination with tamarisk research. This should include research on this species ability to invade understory layers as well as its relative abundance compared to tamarisk.

### **C) Novel and/or cross-disciplinary research opportunities**

Some innovative suggestions for approaching tamarisk research included:

- designing one protocol and implementing it throughout tamarisk's range,
- and applying agroecosystem research to tamarisk.

One suggestion to address the cost concern with GIS and remote sensing materials was to create a coalition that got together to obtain data at a reduced cost.

It was suggested that some future research should consider focusing on places where tamarisk might invade.

One novel approach to studying tamarisk seed dispersal would be to combine studies on this with avian flu studies that check for tamarisk seeds.

### **D) Conclusions relevant to policy and/or management decisions**

It was suggested that communicating impacts of salt cedar to commodity groups and other people would be beneficial, such as two pages on basic, fundamental research and how, over time, it will result in a decrease to their bottom dollar.

Some of the main management questions that were identified by the researchers in the breakout session were questions related to tamarisk:

- dispersal,
- distribution,
- cold hardiness,
- and identifying predictive variables for GIS analysis.