NOT WANTED IN ARIZONA

TAMARISK LEAF BEETLES

Tamarisk leaf beetles (*Diorhabda sp.*) are moving into Arizona from southern Utah via the Virgin River to Lake Mead and the mainstem Colorado River to Lake Powell. Environmental compliance for beetle releases in Colorado, Nevada, Utah, and other Western states did not allow for any releases into the State of Arizona or within 200 miles of occupied southwestern willow flycatcher nesting habitat containing tamarisk. Unfortunately, releases at Moab and St. George, Utah, of the Fukang or Chilik strains of the beetle have allowed the beetles to enter the State of Arizona along the Virgin River. Entry via the mainstem Colorado River is anticipated.

Background: The tamarisk leaf beetle was identified in the 1990's as a potential bio-control agent for invasive tamarisk (salt cedar). Through the 1990's, the Animal and Plant Health Inspection Service (APHIS) and the Agricultural Research Station (ARS), both agencies of the Department of Agriculture, worked with local partners and the U.S. Fish and Wildlife Service (USFWS) to provide opportunities to research the beetle and its effectiveness against tamarisk. In 1999, after both National Environmental Policy Act (NEPA) and Endangered Species Act (ESA) compliance was completed, the beetles were released into cages in several locations across the Rocky Mountains and Great Plains with the following restrictions:

1. Only the Fukang (China) and Chilik (Kazakhstan) strains would be released. These strains were believed to only persist in areas above 38° north latitude (approximately at the upper end of Lake Powell) due to day-length requirements and would not be successful below that latitude.
2. No releases were to be made within 200 miles of tamarisk areas that supported endangered southwestern willow flycatcher nesting.
3. The ESA consultation covered the placement of the beetles in field cages, and the later removal of the cages to free the insects to the surrounding areas. Coverage for active movement of the beetles from the experimental release areas was not included.

In 2004, the Delta, Utah, experimental release site was opened for collection of beetles for use by local agencies in Utah to introduce the beetles to non-Federal lands. Grand County, Utah, stocked beetles in at least two sites near Moab in 2004 and another three in 2005. Defoliation on a larger scale was observed in 2005. Since then, the beetles have moved down the Colorado River almost to the upper end of Lake Powell. In 2006, the City of St. George, Utah, released beetles along the Virgin River at 37° north latitude. By 2008, defoliation along the river and at a southwestern willow flycatcher breeding site was documented. The beetles have spread downstream on the Virgin River to at least Littlefield, Arizona, and are expected to reach Lake Mead in 2009 or 2010. Beetles from Moab down the Colorado River to Lake Powell have slowed their advance; however, entry into Arizona via Lake Powell/Colorado River is still likely to occur.

The Problem: Beetle strains not expected to persist below 38° north are thriving at release sites at 37° north (approximately the Arizona-Utah border) and are moving south toward 36° north (approximately the southern edge of Lake Mead). If they successfully continue southward along the lower Colorado River, they may reach the Colorado River Delta and the rivers of Central Arizona (Gila, Salt, San Pedro, and Verde) and affect southwestern willow flycatchers and other migratory birds nesting in riparian habitats containing tamarisk.

WHY DON'T WE WANT THE TAMARISK LEAF BEETLE IN ARIZONA?

- Tamarisk is a primary woody riparian tree species found along the Colorado and central Arizona rivers. The spread and proliferation of tamarisk in Arizona is primarily due to land management practices that create conditions where native riparian trees are unable to thrive or persist. These practices include dam operations that alter the natural hydrograph, water diversion, and channelization or levee construction that prevents overbank flooding. Although an exotic species, tamarisk provides migration and nesting habitat for the southwestern willow flycatcher and other migratory birds as well as habitat for other terrestrial wildlife. Therefore, should existing riparian habitat dominated by tamarisk be removed or degraded by the beetle, and given that replacement of the native riparian community under the existing limitations from land management decision would be virtually impossible to achieve, the loss of extant tamarisk habitat is a significant loss of habitat for wildlife.
- Tamarisk is not killed immediately by the beetles' defoliation, but the repeated cycle of defoliation does result in death of parts of the trees, changes in the re-growth patterns of foliage, and over time, reduces the vigor of the tree until it eventually dies. Where tamarisk provides suitable habitat for nesting birds, this cycle will degrade the available habitat over the long-term.
- Defoliation by the beetles occurs during the height of the migratory bird nesting season (May through July) and eliminates physical cover and affects habitat microclimates that reduces likelihood of nesting success. This significantly limits migratory bird reproduction, since they have only a narrow window available to nest and produce young.
- The increase in dead leaf litter and branches in the tamarisk habitats increases the risk of wildfire destroying the riparian community, including nearby areas of native riparian vegetation that may not be able to naturally regenerate.

WHAT CAN YOU DO TO STOP THE SPREAD OF TAMARISK LEAF BEETLES?

The U.S. Fish and Wildlife Service in Regions 2, 6, and 8 is working with APHIS and ARS to evaluate the ongoing programs and determine what monitoring and other measures should be taken to address the spread of the beetle outside of previously defined areas. We ask that you:

- Communicate with all your partners and cooperators in invasive weed control groups or river users and let them know not to bring beetles into Arizona or within 200 miles of southwestern willow flycatcher tamarisk habitats. There is no legal approval in place to bring beetles into Arizona.
- Beetles can spread by inadvertent human transport. The downstream movement from Moab may be related to beetles "hitching a ride" on recreational rafting parties that stop at tamarisk occupied areas for rest stops and inadvertently carry beetles downstream to the next stop. Researchers may also contribute to this transport as they move through beetle-infested areas. We are developing a hazard analysis and critical control point (HACCP) plan for use by researchers and other river users, but in the meantime:
    - If you are going into an area that may have beetles, examine all gear, clothing, or other equipment before returning from the field to avoid carrying beetles with you.
    - If you are in an area not known to have beetles, and you see insects that could be beetles, or tamarisk trees that look defoliated, check the area and capture specimens for verification by APHIS. Please ensure the specimens cannot escape while in transit.

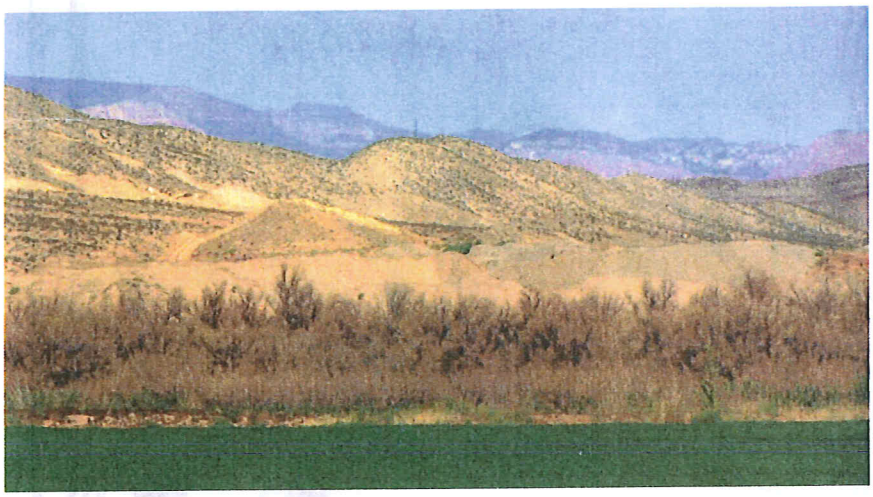
For more information, or to report beetles, contact:

Christiana Manville, USFWS-Las Vegas at (702) 515-5240; Christiana_Manville@fws.gov
Greg Beatty, USFWS-Arizona at (602) 242-0210; Greg_Beatty@fws.gov
Nathan Darnall, USFWS-Utah at (801) 975-3330; Nathan_Darnall@fws.gov

Not Wanted in Arizona: Tamarisk Leaf Beetles

Tamarisk beetles at St. George, Utah

Credit: Mary Ann McLeod, SWCA Assoc

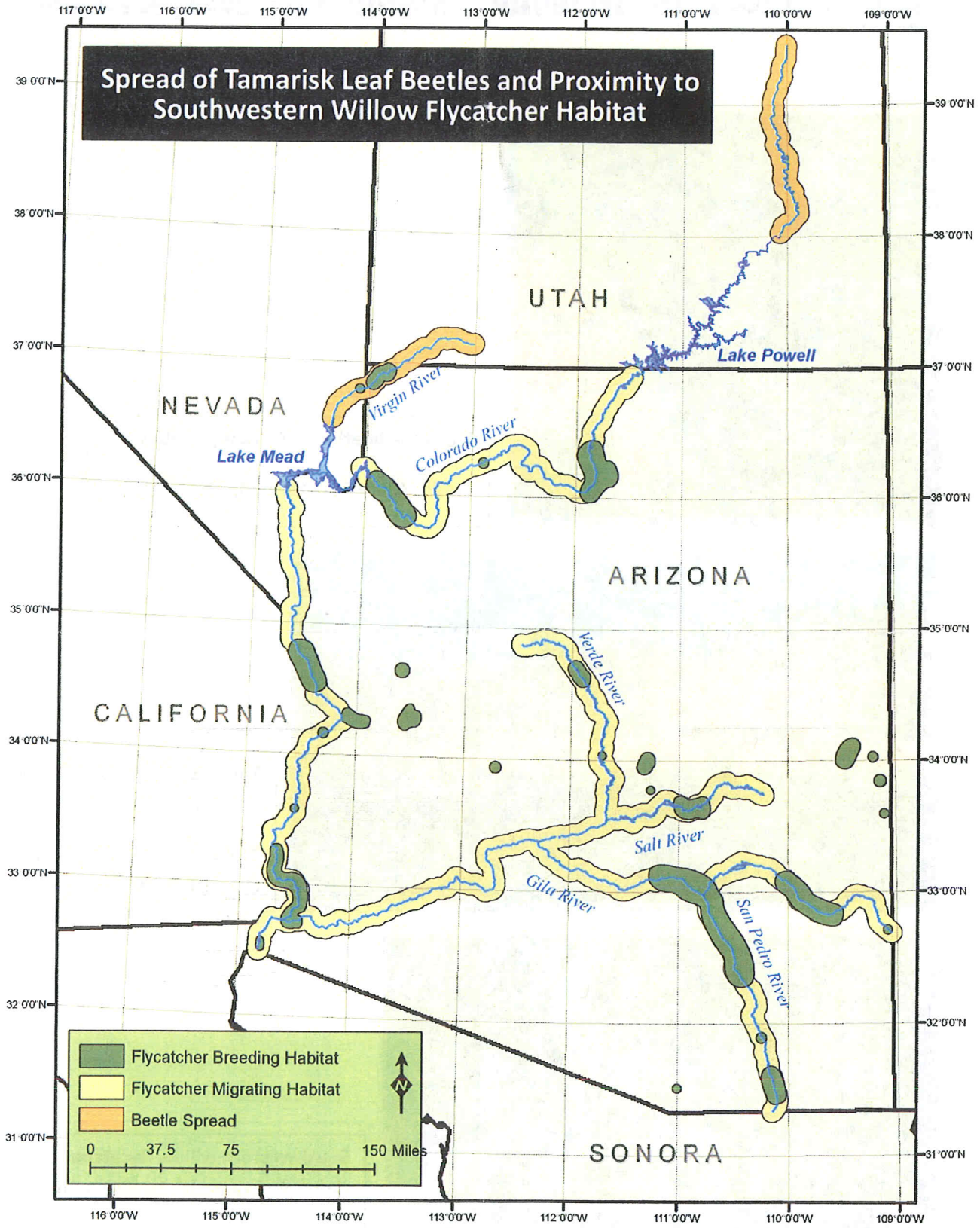


Tamarisk beetle defoliation below St. George, Utah

Credit: Christiana Manville, U.S. Fish & Wildlife Service

Southwestern willow flycatcher nest in defoliated tamarisk on Virgin River, St. George, Utah

Credit: Pam Wheeler, Utah Division of Wildlife Resources


Spread of Tamarisk Leaf Beetles and Proximity to Southwestern Willow Flycatcher Habitat
117°0'0"W
116°0'0"W
115°0'0"W
114°0'0"W
113°0'0"W
112°0'0"W
111°0'0"W
110°0'0"W
109°0'0"W
39°0'0"N
38°0'0"N
37°0'0"N
36°0'0"N
35°0'0"N
34°0'0"N
33°0'0"N
32°0'0"N
31°0'0"N
UTAH
NEVADA
ARIZONA
CALIFORNIA
SONORA
Lake Powell
Lake Mead
Virgin River
Colorado River
Verde River
Salt River
Gila River
San Pedro River
Flycatcher Breeding Habitat
Flycatcher Migrating Habitat
Beetle Spread
N
0
37.5
75
150 Miles