



U.S. Fish & Wildlife Service

# Southwest Region

*Fish and Aquatic Conservation*



**Mora National Fish Hatchery**

*Outdoor Classroom April 2015*



*The annual Mora School District Outdoor Classroom is an effort coordinated by the Western Mora Soil & Water Conservation District to bring area students together with interested State and Federal Agencies to learn about natural resource conservation.*

*This year it was held at the New Mexico State University John T. Harrington Forestry Research Center. The Mora National Fish Hatchery brought the living stream to be part of this exciting day.*

*The students toured through 9 different stations learning about different topics. The event was again a huge success.*

*Close up view of Gila trout in the living stream at the Outdoor Classroom.  
Cover photo: Photo of living stream at the Outdoor Classroom.*

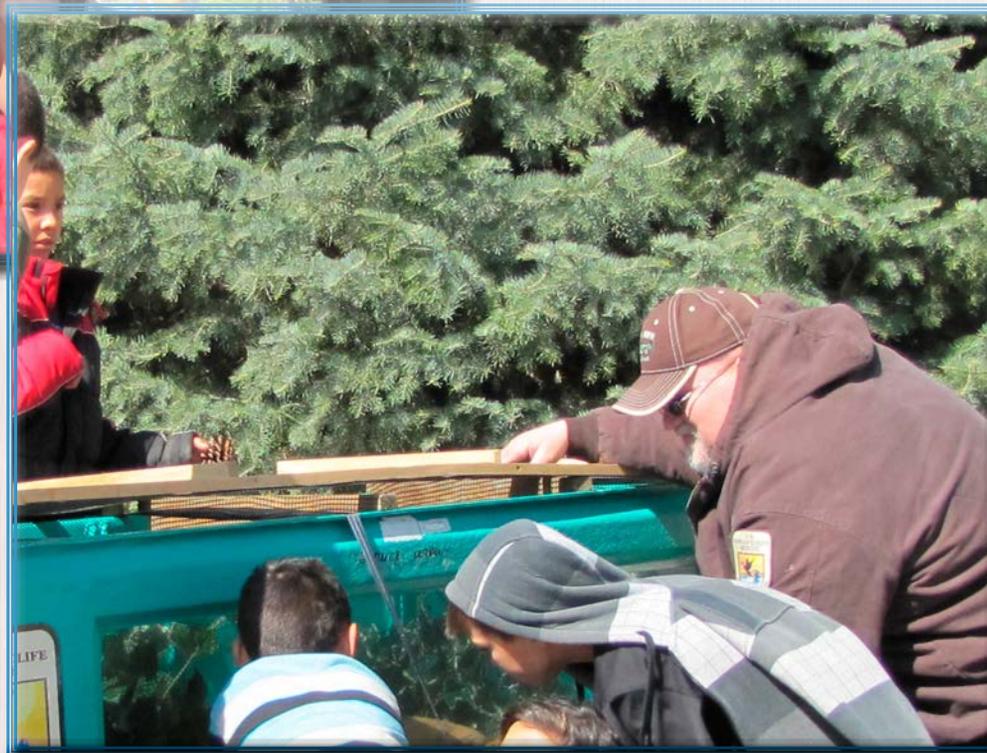
## Gila trout and the Mora National Fish Hatchery

*At Station One the students engaged with staff from the Mora National Fish Hatchery who brought their living stream with live adult Gila trout. While observing the fish the students learned about the life cycle of the Gila trout and were presented with preserved specimens of Gila trout eggs and fingerlings. The students also learned about the work done at the Mora National Fish Hatchery to restore this Threatened native fish.*



*Above: Jeff Conway showing students vials of preserved Gila trout eggs and fingerlings.*

*Right: Jeff Conway and students viewing Gila trout in the living stream.*



# Archery



*Right: Richie Garcia demonstrating stance to a student at the archery station.*

*Below: Richie Garcia observing students at the archery station.*



*At Station Two the students learned about archery from the Mora National Fish Hatchery Staff. Staff provided equipment and covered all of the field safety rules of archery before the students were allowed to practice with the bows. After learning safety the students also learned the basics of stance, loading, and releasing arrows at practice targets.*

# Forestry Appreciation



*Left: Staff present different tools for measuring and planting trees.*

*Below: Staff and students looking at samples of different tree specimens.*



*Staff from the John T. Harrington Forestry Research Center ran Station Three where students engaged with their presentation on forestry appreciation. The students learned about the research done at the Center, native and non-native trees, and the tools used to plant and measure trees. The students also learned about re-forestation of trees after events such as a wildfire or prescribed burn.*



# Weed Control



*Above: Students view a display of pictures of different kinds of weeds.*

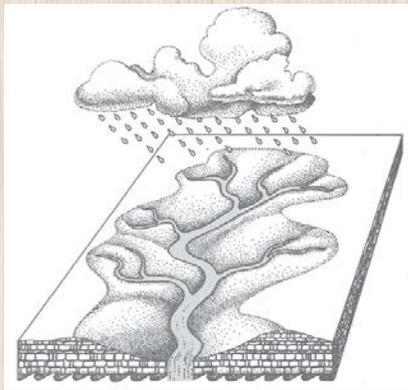
*Right: Students run in a relay race to pull weeds.*



*At Station Four students learned about weed control the Soil & Water Conservation District Staff. The students learned about why weeds are harmful, weed identification, and the weed eradication methods of mechanical removal, biological control, and using herbicides. After learning about weeds the students were grouped into tag teams to pick weeds. Each tag team member had to pick a specified number of weeds before racing back to tag the next team member.*

# Watersheds

*At Station Five students engaged with staff from the Soil & Water Conservation District who presented information on the topic of watersheds. Students learned about the importance of having healthy watersheds and how upland erosion can change them over time. The students also learned about stream restoration work that is completed on both public and private lands to ensure a healthy watershed exists for everyone and everything.*



*Above: Students learn about watersheds through a miniature portable watershed.*

*Left: Students peer into the miniature watershed to observe the changes created by the water.*

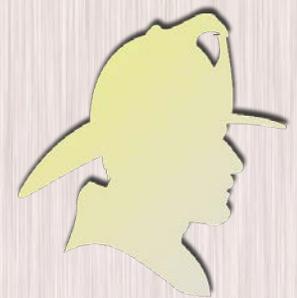
# State Forestry Service

*The New Mexico State Forestry Division ran Station Six where students were given a presentation on forest fires and forest thinning. The staff talked about controlled prescribed burns and how they help the forest, they also talked about activities such as thinning the forest and fire management. The students also learned about wildfire and the different tools and methods for controlling them.*



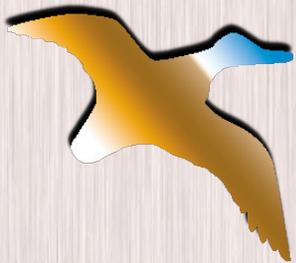
*Above: State Forestry staff and students talk about wildfires.*

*Right: Students observe some of the tools used by the State Forestry Staff.*



## Migratory Birds

Staff from the Las Vegas National Wildlife Refuge taught the students about migratory birds and the dangers they face during migration at Station Seven. The students played a game where they had to migrate through 24 possible stations to get to their destination alive. As they migrated through the stations the students had to avoid electrical lines, cars, cats, and other hazards, as well as find food and safe drinking water.



Above: Tree cluster with attached signs giving students instructions on their "journey".

Left: Student searching for a pine cone to make an easy at home bird feeder.

# Calculating Elevation



Above: Students take turns to peer through the viewer to see the elevation.

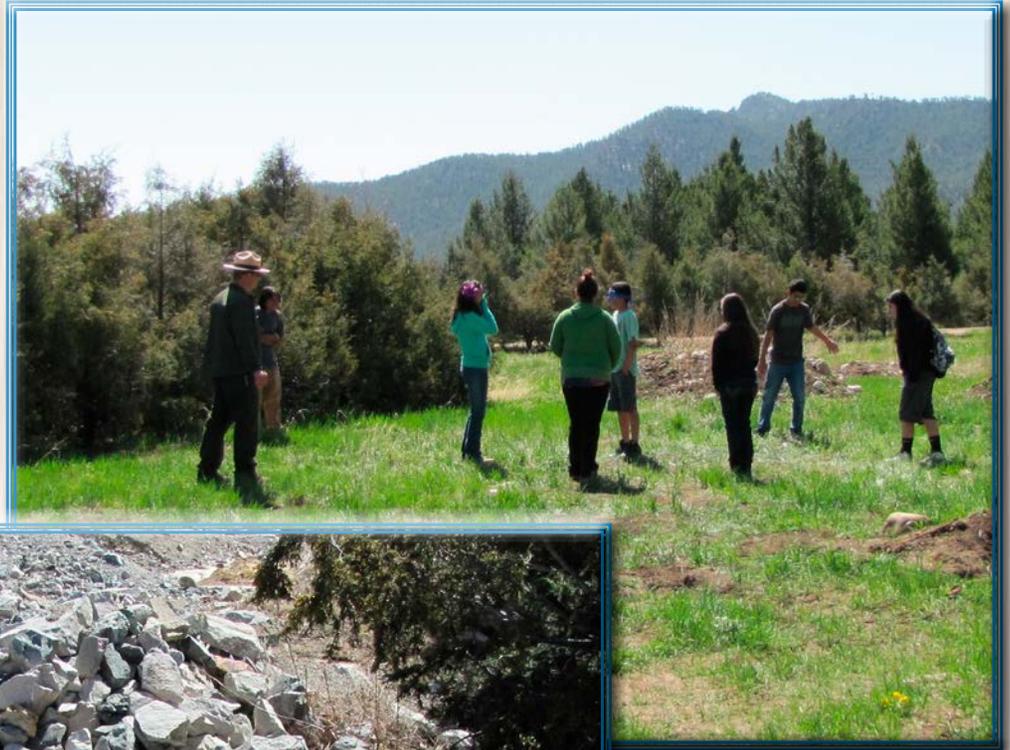
Right: Staff demonstrates how the elevation instruments work together with remote detection.



At Station Eight students engaged with staff from the Natural Resources Conservation Service who presented information on calculating elevation. The students learned about the tools used to calculate elevation using a three-person, two-person, or one-person team. The students learned how to calculate slope and how important they are to engineers that design pipelines to carry water and other resources to their destination.

# Animal Wilderness Survival

Staff from the National Park Service in Fort Union ran Station Nine where students learned about animal survival in the wilderness. The students learned about adaptations of forest animals that helped them survive before playing a game called *Deer's Ears*. In this game one of the students is designated as the deer and blindfolded, the other students then sneak up on the deer who must point at them and eliminate them before they get too close.



*Above: Students playing a game of "Deer's Ears".*

*Left: Various animal pelts and antlers to show how animals adapt in the wild.*



**M**ora National Fish Hatchery is located in north-central New Mexico on the edge of the Sangre de Cristo mountain range about 1.5 miles north of Mora, New Mexico on state highway 434.

The hatchery is dedicated to the restoration and recovery of the threatened Gila trout, a fish found only in the high desert and mountain watersheds of the Gila, Salt, and Verde drainages in New Mexico and Arizona. Biologists maintain wild brood stocks of the rare Gila trout, keeping them in as much a natural setting as possible.

The hatchery was created in 1994 and was operational by 1998. Water is a scarce commodity in the arid southwest and is increasingly in demand for agriculture, municipal, and recreational uses. This demand has consequently impacted aquatic habitats and their inhabitants. Region 2 pushed for an innovative hatchery to assist in tackling these issues. Typical intensive and extensive fish culture techniques use far more water than was available, so a recirculation hatchery was designed. It relies on water re-use and re-circulation technologies to reduce quantities of influent water required by approximately 95 percent.

The facility has the ability to keep five distinct lineages of Gila trout on station. For each lineage there are separate systems for raising the trout as well as maintaining broodstock. Since the facility began operation it has expanded the lineages of Gila trout it works with and has served as an emergency refugia when the trout have been threatened by wildfire.

Currently the hatchery has Main Diamond, South Diamond, Spruce Creek, Whiskey Creek, and Iron Creek lineages on station. The lineages of Whiskey Creek, Iron Creek, and Spruce Creek are the most endangered with these lineages being nearly extirpated from the wild.

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*Background photo: Overlook of hatchery from the top of the hiking trail.*