



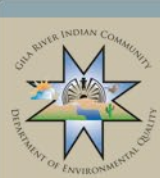
# GILA RIVER INDIAN COMMUNITY DEPARTMENT OF ENVIRONMENTAL QUALITY

**Gila River Interpretive Trail (MAR-5)**  
**Where Culture, Economics, Education, and  
Environmental Science Converge**

**Tison Gill**

**Environmental & Education Outreach Specialist**





# Learning Objectives

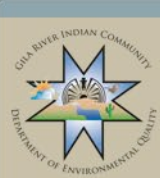
Culture – How does MAR-5 incorporate culture?

Economics – How does MAR-5 benefit the community economically?

Education – What can be learned at MAR-5?

Science – What experiments are routinely done at MAR-5?

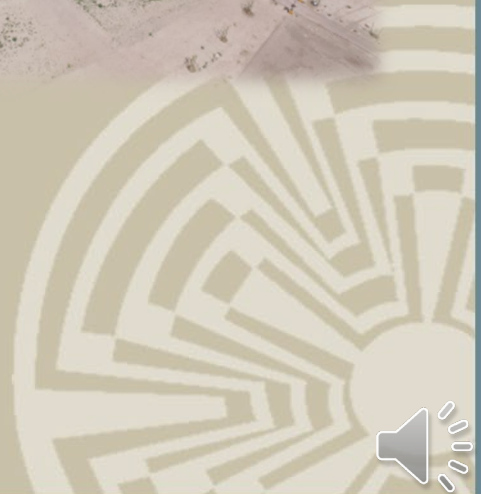
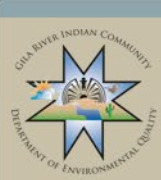




# What is the Gila River Interpretive Trail (MAR-5)?

- Managed Aquifer Recharge Site
- Involved in Historic Water Settlement
- Outdoor Educational Learning Experience
- Incorporates Pee-Posh and Akimel O'otham cultures







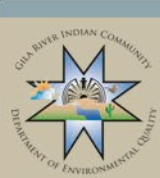










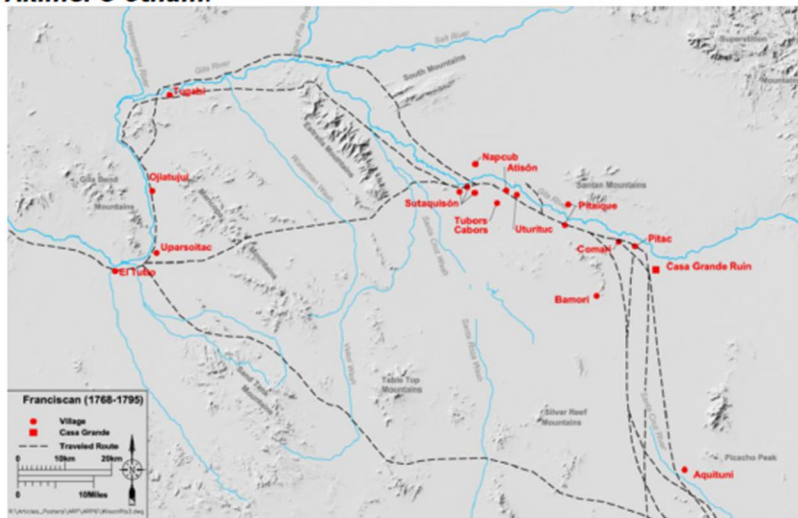


# How does MAR-5 incorporate Culture?

- Interpretive Signage (3 Languages)
- Farming Legacy
- Reconnecting with the Gila River



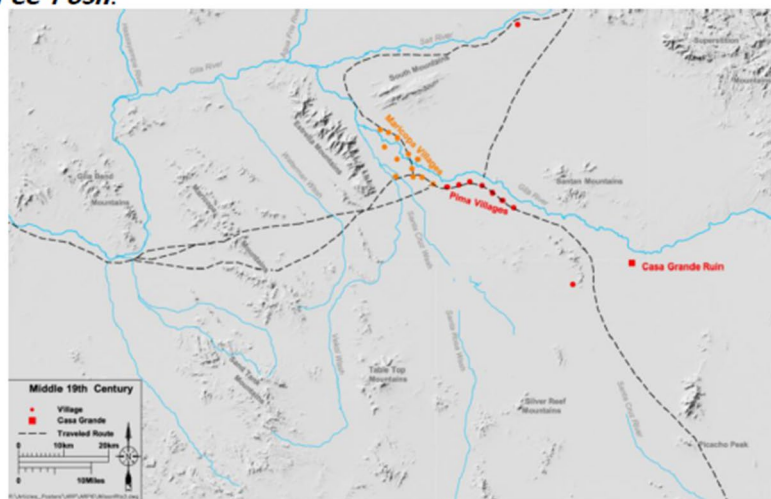
## 8.0 Akimel O'otham:



Franciscan Era Village Map

Our villages were scattered along the Gila River and its tributaries starting with the 1694 village of Tusonimo where Padre Kino held Mass. In *Akimel O'otham* the name means *Chesoñ Mo'o* (Bighorn sheep horns piled up) and was named *La Encarnación* by Kino. From *Chesoñ Mo'o* our villages extended to the west of the Great Bend. We have developed extensive irrigation canals and productive agriculture growing a variety of seasonal crops. Wild foods were gathered when in season, and wild game was hunted. The roles between the sexes were established and both worked together in planting crops and harvesting the bounty as they matured and ripened. In times of warfare women took over the duties of the men. The raising of the youth was directed by the Elders and adults of the tribe. *Akimel O'otham* practiced 'universal conscript' which meant that all able bodied males served in the Tribal militia to protect the villages and *O'otham* from enemies.

## 9.0 Pee-Posh:

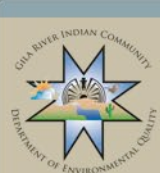


Middle 19<sup>th</sup> Century Village Locations

The *Pee-Posh* and are of *Patayan* descent and originate from the lower Colorado River area. In the early 1700's several bands slowly migrated eastward up the Gila River. Warfare between the *Quechans* and other Colorado River Indian Tribes forced several bands of *Pee-Posh* out of the lower Colorado River area. The *Pee-Posh* migration:

- Halchidoma*: Moved from the upper Colorado River area down to the Gila River junction and then eastward.
- Kaveltcadoma*: Moved from the Colorado/Gila junction on up the Gila River.
- Halyikwamai*: Settled in Sonora.
- Kohuanas*: Settled in Sonora before moving toward the Gila Valley.
- Cocomaricopa*: (Maricopa) moved from the Colorado/Gila junction and settled next to the *Akimel O'otham*.

Historic villages: *Tugsapi* and *Opasoitac* were located near the Great Bend of the Gila River.



### 3. North: Akimel the Gila River:

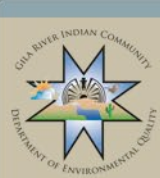


## Akimel, The Gila River

Our **Hechiu O'otham** made productive use of the waters of the Gila River. Ancient settlements were established upriver at Sivan Va'aki, Grewe and Escalante Ruins. Our ancestors developed an extensive irrigation system that sustained them in the arid Sonoran Desert. In our Community today there exists visual indicators of their occupation sites and miles of excavated canals. After the collapse of the Huhugam culture around 1450 A.D. our people began to settle in small villages along the Gila River and developed productive farm-lands.

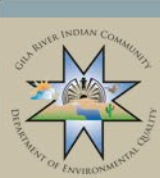
At first contact in 1694, Padre Eusebio Kino recorded descriptions of our lands, the Akimel O'otham, and the plants that the river sustained. Throughout the following centuries, Europeans, Spanish, and, eventually, the Americans also made contact and recorded their observations about the middle Gila River valley, our extensive agricultural production, and the Akimel O'otham and Pee Posh peoples.

Many visitors to our community passed through this very MAR-5 site on their travels westward. The **Akimel O'otham** and **Pee Posh** always welcomed these visitors and treated them with the proper hospitality. Our villages provided a safe haven for them to rest, restore their health, and provided them with good nutritious food as well as forage for their livestock and mounts.



## How does MAR-5 benefit the community economically?

- The Arizona Water Settlement Act of 2004
- Pima-Maricopa Irrigation Project
- Gila River Community's Five Year Water Plan



# What can be learned at MAR-5?

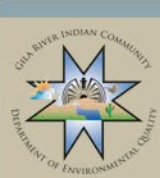
- Plant signage
- Bird/Animal/Insect signage

What do these signs describe? Why are they important?



# Plant Signage Example





# Plant Signage Example

AO: Shegoi; PP: 'livse, Creosote Bush, *Larrea divaricata*: Shegoi was the first plant created in the O'otham Creation Epic. and it is abundant and widely distributed throughout the desert. You can smell the pungent aroma of its resinous leaves following summer rains. It is one of the most important O'otham medicinal plants. Importance:

1. Medicinal tea made from fresh leaves is used to treat colds and flu.
2. Blessings are given with smoke from burning leaves.
3. Small globules of lax, formed by tiny insects on the stems, can be melted and used as glue and a waterproof sealer.



# Akimel O'otham Haichu U'uvig

(Birds of the Gila River Indian Community)



See if You can spot a few of these birds during Your visit to the  
Gila River Interpretive Trail!



Photo: Dave Pearson

**Ñui** (Buzzard),  
Turkey Vulture,  
*Cathartes aura*. Clan  
Membership. These  
scavengers have red  
featherless heads.



Photo: Robert Johnson

**Haupal**, Red-tailed Hawk,  
*Buteo jamaicensis*.  
Haupal is referenced in  
Our Creation Story. This  
bird can be seen soaring  
high over open fields.



Photo: Dave Pearson

**Thadai**, Greater  
Roadrunner, *Geococcyx*  
*californianus*.  
Mentioned in a Folk  
Tale. This ground  
forager has an x-shaped  
footprint.



Photo: Dave Pearson

**Kakaichu**, Gambel's  
Quail, *Callipepla*  
*gambelii*. This bird  
features prominently in  
Our Creation Story.  
They live in groups of a  
dozen or more.



www.allaboutbirds.com

**Shashañ**, Red-winged  
Blackbird, *Agelaius*  
*phoeniceus*. Red-winged  
Blackbirds are positively  
associated with  
agriculture. They will  
flock with hundreds of  
other blackbirds.



Photo: Woodrow Crumbo

**Ko:mag Vakoañ**, Great  
Blue Heron, *Ardea*  
*herodias*. These wading  
birds can be spotted at  
water sources  
throughout our  
Community. These birds  
stand motionless until  
they quickly grab a fish.



Photo: Dave Pearson

**S-chuk Mo'okam**  
**vakoañ**, Black-  
crowned Night Heron,  
*Nycticorax*  
*nycticorax*. These  
wading birds are  
nocturnal, but can be  
spotted in the early  
morning.



Photo: Dave Pearson

**Chivi-chu:ch**, Killdeer,  
*Charadrius vociferus*. A  
year-round bird that  
adds its distinct call to  
Our landscape. These  
ground foragers prey on  
insects.



Photo: Woodrow Crumbo

**S-Thoa Vakoañ**, All  
Egrets, *Egretta*, *Ardea*.  
Egrets can easily be  
identified by their  
white plumage. These  
wading birds can be  
observed at several  
water features.



Photo: Robert Johnson

**Vipismal**, (All  
Hummingbirds),  
*Trochilidae*.  
Hummingbirds are very  
sacred to the *Akimel*  
*O'otham* and is mentioned  
in Our Creation Story.  
They are the only bird that  
can fly backwards.



# Haichu Thothakam

(Wild Animals of the Gila River Indian Community)



See if You can spot a few of these wild animals during Your visit to the  
Gila River Interpretive Trail!



[www.azgfd.com](http://www.azgfd.com)

**Ban, Coyote, *Canis latrans*:**  
**Ban** is a Clan Membership of the Coyote Clan. Can be observed roaming the landscape and can reach speeds over 40 mph.



[www.azgfd.com](http://www.azgfd.com)

**Vavuk, Raccoon, *Procyon lotor*:**  
**Vavuk** is strictly nocturnal, but their tracks left in the mud are easily identified by the five long toes and small sharp claws on each foot.



Photo: Robert Johnson

**Shelik, Round-tailed Ground Squirrel, *Spermophilus tereticaudus*:** **Shelik** can be observed climbing Mesquite trees. They typically are active in the morning and late afternoon.



[www.azgfd.com](http://www.azgfd.com)

**Vosho, Cotton Rat, *Sigmodon arizonae*:** **Vosho** create nests in brush covered areas near water. They were once hunted for food.



[www.azgfd.com](http://www.azgfd.com)

**Tho:b, Desert Cottontail, *Lepus californicus*:** **Tho:b** can be observed drinking water from canals and will evade predators in a zig-zag pattern.



[www.azgfd.com](http://www.azgfd.com)

**Chu:v, Jackrabbit, *Lepus californicus*:** **Chu:v** take shelter in the shade of brush during the day and forage in late afternoon. They are still hunted for food today.



[www.azgfd.com](http://www.azgfd.com)

**Kaso, Kit Fox, *Vulpes macrotis*:** **Kaso** is the smallest species of fox in America and can be observed near water bodies in the early mornings or late evenings.



Photo: Robert Johnson

**U:pio, Striped Skunk, *Mephitis mephitis*:** **U:pio** come out at night and forage in places with running water.

## *S-hohothk La'ach Haichu Thothakam* Insects of the *Akimel O'otham*



Julie McIntyre  
[www.monarchwatch.org](http://www.monarchwatch.org)

***Ho'okimal, Many species.*** Can be observed feeding on nectar and pollen from flowering plants.



Rick Gibson  
UA Cooperative Extension

***Nakshel, Desert Hairy Scorpion, *Hadrurus arizonensis*.*** Can be observed hunting at night or under rocks, debris and in crevices at night.



Michael J. Plagens  
[www.arizonensis.org](http://www.arizonensis.org)

***Sho:'o, Grasshopper, Suborder Caelifera.*** Can be observed eating leaves and the outer layer of plant stems.



[www.antweb.org](http://www.antweb.org)

***Thothoñ, Ants, Many species.*** Can be observed throughout all landscapes harvesting seeds, plant material and even other insects.

## *Haichu Bañimetham – Reptiles of the Akimel O'otham*



[www.reptilesfaz.org](http://www.reptilesfaz.org)

***Ko'í, Rattlesnake, *Crotalus spp.**** Can be observed basking on warm mornings or mild days. Feeds on small mammals, lizards and birds. **VENOMOUS.**



Robert Johnson  
Huhugam Heritage Center

***Chemmemag, Horned lizard, *Phrynosoma spp.**** Can be observed basking in the sun and feeding primarily on ants. Very well camouflaged and difficult to detect.



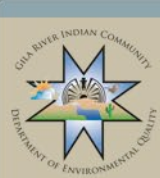
[www.reptilesfaz.org](http://www.reptilesfaz.org)

***Jusukal, Desert spiny lizard, *Sceloporus magister*.*** This large bodied lizard can be found in trees or other perches and feeds on a wide range of insects.



[www.reptilesfaz.org](http://www.reptilesfaz.org)

***Hujud, Whiptail lizard, *Aspidoscelis spp.**** Can be observed throughout the day and rarely sit in one spot for very long. Feeds on a wide variety of insects.



# What **Science** is taking place at MAR-5?

- Pole Harvesting and Planting
  - Pee Posh Wetlands
  - Salt River
  - Wickenburg
  - Queen Creek
- Water Sampling



# Cottonwood and Willow Harvesting/Planting

Source trees are carefully selected for harvesting, poles are cut and limbed.



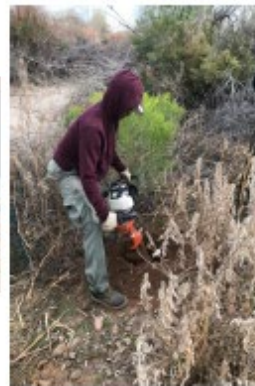
Poles are wrapped and soaked in water for 7-10 days.

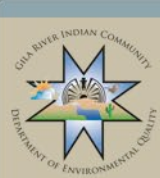


Poles are planted in 4-5 feet deep holes in areas that have frequent water.



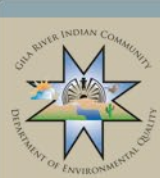
Poles are monitored for budding, seeding, leafing, and growth rates.





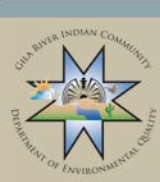
# Harvesting/Planting

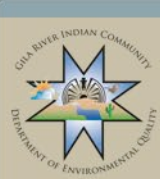
- Poles are color coated
  - Monitor when they start to bud
  - Budding happens at different times due to location
- Poles are planted and monitored for growth
  - Mortality and survival rates taken from monitoring



# Water Sampling

- Groundwater Sampling (6 groundwater monitoring wells)
- Surface Water Sampling (Outfall and within Gila River Interpretive Trail Ponds)
- Depth to Groundwater Measurements (6 groundwater monitoring wells)
- Field Parameter Collection (Outfall and within Gila River Interpretive Trail Ponds)





# What did you learn today?

If you would like to schedule a tour please contact...

Email: [Tison.Gill.DEQ@gric.nsn.us](mailto:Tison.Gill.DEQ@gric.nsn.us)

Phone: 520-562-2234

Location: 168 Skill Center Road  
Sacaton, AZ 85147

If you would like more information on GRIT/MAR-5 visit our website at  
[www.gricdeq.org](http://www.gricdeq.org)

