**Michael Connolly Miskwish:**

The use of traditional practices never really went away. It's always been there even before the creation of the reservation and it continued on while the reservation existed.

One of the big expansions on Campo reservation actually occurred around 1909, 1910, and it was a direct result of extended drought that occurred in the early 20th century. And the people didn't realize how many Indians were living out in the east county and were actually dependent upon their traditional land use practices to survive.

**Anne Marie Tipton:**

This is the ancestral land of the First People, the Kumeyaay.

As climate change continues to wreak more havoc both locally and abroad, how we manage land will become more of a significant factor in protecting the planet's resources. However, here in California, we don't have to look far to find ways to accomplish that.

For thousands of years, the Kumeyaay have implemented land management practices to both protect and enhance resources and productivity of the land, whether it's for food or medicine or other raw materials. To this day, some of those traditional practices are still in use. This ranges anywhere from building rock walls to utilizing controlled burns.

In this episode of Divided Together, we'll hear from two members of the Kumeyaay Nation and how their ancestors have used the land's resources to benefit both the land and the people, as well as why these practices are necessary in our increasingly changing climate.

I'm Anne Marie Tipton, the Education Coordinator at  the Tijuana River National Estuarine Research Reserve, and I'll be your guide.

**MCM:**

My name is Michael Connolly Miskwish. I'm a resource economist and I am a member of the Campo Band of the Kumeyaay Nation.

**AMT:**

As of this episode's release, the entire state of California is in the middle of a significant drought. This is not unlike the early 20th century drought Michael mentioned at the top of the show.

**MCM:**

And when there was this extended drought, it cut off the crops of acorns that were normally available and there was widespread starvation in the back country area. And so that was the impetus for an organization called the Sequoyah League that introduced, or that pushed for legislation to expand Campo reservation to pretty much its present size. And so, the traditional practice has continued on and we've continued that.

**AMT:**

In the late 1980s, Michael got more involved with various projects on the reservation, putting some of the traditional Kumeyaay land management practices to even more use on the Campo reservation, within the Tijuana River Watershed.

**MCM:**

Yeah, most of the reservation. We do have about one square mile that drains toward the Salton Sea, but the rest of it is all part of the Tijuana River watershed. And we've done several things, but probably most significantly we've re-introduced the traditional technique of establishing rock drop structures within the drainages. And these are kind of an analog to what beaver dams do in other parts of the country. And if you go to the drier climates in the United States, you find that a lot of the tribes were doing similar types of activities in drainages, where they'd lay rocks or wood into the drainages that would slow down the water that was coming down. And allowed for more of the sediment to build up in those areas, increase the amount of recharge, and help to enhance and actually create wetland areas.

**AMT:**

This particular practice of rock drop structures has been in place for almost 300 years.

**MCM:**

there's records that go all the way down, Baja, California. Even down to the first mission in Baja, California, down at Loreto, there are records, Spanish records of people putting the rocks across the drainages there to help slow down the water and enhance recharge. So this was something that we did and it was to try to address problems of erosion in the central part of the reservation. And it was tremendously successful.

**AMT:**

The historical context of why this mattered is very important, too.

**MCM:**

So what you have to understand is that when the reservation was first created, the attitude among the government officials was that wetlands were wasted land.

And that's one of the reasons for the creation of the Bureau of Reclamation. They wanted to reclaim wasted land. And one of those ways was going into wetlands and actually draining them. So this was introduced at Campo and we had a nice wetland area and they cut a channel down through the center part of it in order to drain it so they could introduce agriculture: barley and wheat farming primarily.

And it destroyed the wetland species.

**AMT:**

So were the practices that the Campo band implemented successful?

**MCM:**

To define how successful it was, I guess in a nutshell you could say that we increased the storage capacity of water in the watershed by probably hundreds of acre feet of water, additional water that's being stored in the watershed and raise the water table over 20 feet from where it was before. And we've just created a huge amount of habitat for about a two mile stretch of the Creek.

**AMT:**

In our talk, Michael mentioned the wetlands as one of the more important ecosystems they can have in their area. The other?

**MCM:**

The other was the transitional ecotones in the burned areas.

**AMT:**

An ecotone is an area where two different plant habitats overlap.

**MCM:**

So the introduction of fire into areas would create a fire mosaic or a pattern of burned areas that were in various stages of succession. And as they go through those stages of succession, there's different types of plants that start growing and they provide different types of medicines and foods. These transitional ecotones provide nice places for habitat for animals. They can come out and graze on them and still be close to their cover, which they don't have if you have a very extensive burned out area. So that increases the carrying capacity of the land and increases the game that's available.

**AMT:**

These fire mosaic patterns coupled with the practices used in the wetlands, allowed for significant resource restoration.

**MCM:**

Both by creating the water resource that we used, that everyone needs, but also by attracting game and providing the plants that we used for tools and for housing and baskets and then the medicines and foods too, that come with it. So we now have in the central valley of the reservation, what was in essence, it had become desertified, now has cottonwood trees that are over 60 feet tall and has a very lush ecosystem with 30 foot willow trees and all kinds of different wildlife that utilize the water now. Red-winged blackbirds nest there, ducks nest there. It's pretty nice.

**AMT:**

But when it comes to the fire mosaic and controlled burns, the Kumeyaay have encountered obstacles when it comes to putting those practices to good use. Michael explains why.

**MCM:**

Burning runs against modern liability issues. And unfortunately the way the land use planning occurs, there have been some restrictions in more recent years on building homes on too steep of slopes. And I think part of the reason for that was a safety issue and having homes that if you get heavy rains, you could have homes that have mudslides from the pads people would create on

the sides of hills. But also it becomes problematic for firefighters when you have a fire raging up a hill, and if you're on a steep slope, it's really hard to stop it. But we also have fire corridors and we have the tools now that we can model a lot of these fire prone areas.

And we can see places where if the wind's coming in the right direction, it's just going to be a furnace going through some of these valleys. And yet they're still permitted to put homes as long as they meet the slope requirement. They can put a home in some of these fire corridors. So we really need to change our approach to land use planning.

**AMT:**

Michael and others believe changing the approach to land use planning would allow for more limited burns and a reduction of fuel load. More fire mosaic, less burned out patches. This would not come without initial challenges to get started. To Michael, though, it’s just a matter of pushing through that before things become easier to control.

**MCM:**

But once you do get them started again, they're pretty easy to maintain, and they basically have a built in safety feature because you are working in a fire mosaic that a fire will have a tendency to burn itself out when it reaches one of the bare patches in the mosaic. But we still have to address the issue of land use planning and how homes are put into those corridors. So the same way that we now look at floodplains, we need to look at fire corridors and have the same types of concerns in order to re-introduce that type of management.

**AMT:**

As for the rock drop structures mentioned earlier, those are a little easier to create and maintain.

**MCM:**

And that's a little easier because it is recognized more and more the value that beavers have in areas where you have perennial stream flow. And it's not that difficult of a leap for people to understand the human dams that are put in rock drops or wood, there are naturally occurring weirs that occur in forested areas where trees will fall across the stream channel.

And without any beavers or humans involved at all, they'll actually create wetlands that'll last for a while until they eventually will rot away and they'll disappear, but they'll come and go. And this is also recognized as part of the ecosystems and it's a natural enhancement to the ecosystem, through the creation of the wetlands. So these are things that we can do, and we have been in

discussion with people from the Regional Water Quality Control Board and with EPA. EPA has actually helped assist us with funding for some of the rock drops that we put on Campo reservation and other reservations in the county. We were even able to get some support to reintroduce rock drops into some of the Kumeyaay villages in Baja, California, too. So this has been a really beneficial program, and it's enhanced not only the traditional foods that we use, but also some of the crafts. We've had a resurgence in basket making more recently.

And some of these are in areas where the basket making material, the willows and the juncus were just completely gone from overgrazing by cattle.

**AMT:**

This overgrazing is another area of land management that Michael believes is an issue.

**MCM:**

We have very strict laws regarding putting any type of material into streams. You need a dredge and fill permit to do that. Even putting a road along a stream bank or even human activity, even walking along stream banks where you're pushing sediment into the stream can trigger a violation. But you can take a herd of cattle and run them through a stream, and they can completely decimate it and completely destroy the vegetation and cause massive erosion, and they're exempted from any of those laws. So that's another place where we need to have some changes to try. If we are going to introduce some of these traditional techniques, which I think are very beneficial, we need to change the way that we are currently doing things.

**AMT:**

The Campo Band of Kumeyaay aren’t the only ones to study and implement traditional land use management practices.

**Kristie Orosco:**

My name is Kristie Orosco, and I'm from the San Pasqual Band of Indians. I'm currently a master's student at Scripps Institute of Oceanography within my expertise is in Southern California biodiversity and conservation.

**AMT:**

According the Kumeyaay, their historical connection to the natural landscape is in their DNA.

**KO:**

We don't really separate ourselves from the natural environment as far as our culture is concerned. And so if you go back to pre-invasion times, there were basically every kind of human need or want could be found in the outdoors. There's the plant medicines, the plant families that are found can have DNA that's ancient.

And the location, and the use, and how ancient they are just goes to that the sustainability of the ecology and the biodiversity is directly related to the human interaction and relationship with these then natural resources and with the natural environment.

**AMT:**

Kristie brings up examples of habitation sites with a stone hearth that have been charcoal dated back to over 40,000 years ago.

**KO:**

And so, and also very near to here is also the ancient site that is the 150,000 year old, the Mastodon bones that were found to have human impacts.

And that display is at the San Diego Natural History Museum right now. And that's important because that puts our area here, the indigenous people of Southern California as one of the longest continually inhabited places on earth. There's other places that have been carbon dated as older, but they do not have continual habitation by a culture. And they are desertified, those other areas that have older carbon dating than this region here. And so I directly attribute all of that and our relationship with the sustainability of the land, to our cultural beliefs and the way that we interact with nature and with just how things used to be prior to the current cultural norms.

**AMT:**

When Kumeyaay land was first settled by Europeans, a cultural shift happened. The land management practices the Kumeyaay had been implementing for thousands of years were restricted by white settlers. As a result, both the land and the people have suffered.

**KO:**

We weren't allowed to work with the watersheds to enhance the groundwater and to protect and create sustainability at the springs. And therefore, majority of the springs in this region are no longer functioning as artesian springs, because they don't have the interaction of the people to

maintain them and to work with the land features and the water features. And this is also true in the wetlands and in the aquifers. These aquifers in our region have been continually maintained and replenished over thousands upon thousands and thousands of years. And they are actually in this cultural norm that we're in. Currently, they are being drained at a rate faster than anyone could imagine right now. And what that means to our local ecology is that, well, there's a lot of repercussions that are coming because of the way that water use has been altered over the past 150, 250 years, 300 years.

**AMT:**

After centuries of discriminatory legislation which attempted to destroy Kumeyaay culture and traditions, it was only recently that some of the traditional Kumeyaay practices were officially decriminalized.

**KO:**

It was in 1968 I believe, that we were allowed to speak our language again, and practice our religion again, and to practice our traditional ways again. So prior to that when my father was born, when my grandfathers, my grandmothers were born, it was punishable. Punishable by law if we were to do these things. What I'm doing now would've been a great risk to myself and my family. And if I was speaking the language, even worse. I would probably be punished in the middle and be a brutal thing to happen to people just for speaking their language and sharing their culture.

And so today we're thankful to all the people that sacrificed to keep all of our Traditional Ecological Knowledge within the families and the song cycles, so that we could carry on that tradition of the relationship to the land and the sustainability. And to be able to restore things based on those teachings that we have from our ancestors.

**AMT:**

Traditional Ecological Knowledge, or TEK, is the evolving knowledge acquired by indigenous and local peoples over hundreds or thousands of years through direct contact with the environment. This discussion of Indigenous Land Use Practices is one and the same with TEK.

Part of Kristie’s work has both a scientific and historical mix to it that is pretty fascinating. They are out there restoring natural habitats and ensuring the actual DNA of plants remains strong.

**KO:**

When I do restoration projects, I look to make sure that the plants that we're installing are of a DNA that's going to enhance the area. And that's something our people would've done also. So, if 400 years ago or more. So if my sister lived down the creek for me, and her basket material seemed more strong, and durable, and her baskets lasted longer than I would borrow some of her plant shoots and put them in my area.

And that way I would have the same strength and durability of my resources. And then I could have baskets just as strong. And that would go on for generations upon generations so that you're enhancing the DNA of the plant community, so that we can have that relationship with it. And so that it can be useful and the plants want that as well. And so they thrive. And as you see, there's thousands and thousands of species in our area, and each one of them is special and has a place. And that's important to recognize the value like that.

**AMT:**

Kristie also talked about why the traditional relationship with the land was and is so important.

**KO:**

There's very specific properties. And having that traditional knowledge and that relationship's important because then we value each item. And so years ago, those items were carefully, like I said, manicured and it was even noted. The early European explorers said that this was like a manicured garden when they got here. They said they saw hundreds and hundreds of fires coming out of the center of the, and all a dome huts on when they arrived. And that was in the San Diego Bay Area and the estuaries and the lagoons to the North and South. And so that's been reported of that's how it was here in this area. And there was not a shortage. The concepts and the ability to sustain and manage the resources was ingrained into the culture.

**AMT:**

The current land management processes are still a major concern for Kristie and others.

**KO:**

The land management practices have created a situation where it causes harm and danger to rural communities and urban interface areas. Because people don't understand the value of the coastal sage scrub and the ecology that we have in San Diego. And so it's a lack of education and knowledge of the majority population of the value that is in our natural environment. And the value directly relates to why we need to sustain that and why it needs to be replenished, and protected, and conserved.

**AMT:**

Kristie, though, stands strong in her beliefs that the resilience needed to overcome the land management challenges, including repercussions of poor decisions, comes straight from those that have been on the land since time immemorial.

**KO:**

The words I would use to describe the indigenous people of Southern California and their relationship to the land is its resilient and undefeated.

Even though indigenous people are just now recently being able to have a say, and have a voice to protect these resources that do not have a voice. They were not gifted with the voice. And so we were. So it's our responsibility as human beings with a voice to speak up for these resources that cannot use the voice that we understand as humans. So it's important that we realized that that's undefeated. We were speaking our language over 10,000 years ago, and just only in the past, couple 100 years, 300 years it's been outlawed. But we went through the Spanish government, we went through the Mexican government when this was Mexico, and now we're in the United States government phase.

And our relationship with the land through our language and our religion is undefeated. Because regardless of the genocide and treating us as livestock to keep us on the reservation as just a labor pool for ranches, regardless of all those years of trying to terminate our identity and our relationship to the land, we still have that. We still have our language. Through all those three phases of government and those three dominating cultures. We're still able to go out and eat and use the medicine and know where to go for our religious purposes. And that to me is important to leave that legacy for our youth and the coming generations, because that traditional environmental knowledge is going to be necessary and is necessary. And like I said, I feel it's a responsibility of all of us as human beings to speak up for these plants and animals that don't have a voice.

**AMT:**

All Californians owe a debt of gratitude to members of the Kumeyaay Nation for their “resilient and undefeated” management of the land in San Diego County and northern Baja California, Mexico. Many of us have no idea that the Kumeyaay essentially “gardened” plant communities such as coastal sage scrub, grasslands, wetlands, and coast live oak woodlands that “provided a cornucopia of foods, medicines, and raw materials for clothing, baskets, houses, dance regalia, and other cultural objects.” (Lightfoot and Parrish 2009:8). The rock drop structures that the

Campo Band has installed, to remarkable results, are critical to restoring wetlands in the arid east San Diego County.

It has only been in the last 50 years or so that the United States has had laws to protect the environment like the Clean Water Act, the National Environmental Policy Act, and the Endangered Species Act. That is evident by the fact that over 90% of wetlands are gone in California. Members of the Kumeyaay Nation, however, have protected and stewarded land for millennia. California State Park ecologists are now appreciating how the Kumeyaay Native Californians and other California indigenous people's controlled burn techniques lessened the fire damage to trees like coast live oak and their knowledge can uncover how to survive in a changing climate.

I'm grateful for Michael and Kristie's time and for sharing their knowledge and experience with us. Thank you for listening to Divided Together, brought to you by California State Parks Foundation, Parks California, and the generosity of an anonymous donor.