



## Environmental Protection Department

Our Mission is to protect, monitor, restore, and regulate Morongo's natural resources, honoring and protecting all life, land, and traditions and enhancing tribal sovereignty. We will promote environmental awareness and environmentally considerate actions by exemplifying environmental stewards, fostering collaborative relationships, expanding education and outreach activities, and continuing to enrich and develop our programs.

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### Earth Day 2023

Written by: Dana Morey, Environmental Director

Our annual Earth Day event was held on April 21 with a crowd of 359 attendees! We gathered to share information on recycling, water conservation, air quality, resource conservation, and environmental stewardship to preserve our precious and culturally significant resources. Thank you to Morongo School, Tribal Government Departments, Local Community Organizations and the Morongo

Community for joining us at our annual Earth Day Event! Our annual event is a culmination of a month long outreach program with the Morongo School students, preschool through 8th grade, and prominently features the students' work. This year that work included 91 student created posters, numerous recycled materials art projects, and 2 booths created and hosted by the 7th and 8th grade students sharing information on Leave No Trace and environmental stewardship principles. We hope to see you all again next year!



# Could You Have Asbestos in Your Home?

Written by: Jessica Southard, Environmental Specialist I

## What is asbestos?

Asbestos is a naturally-occurring, fibrous, silicate mineral found in rock and soil. There are six main types of asbestos: Actinolite, Amosite, Anthophyllite, Chrysotile (the most common), Crocidolite, and Tremolite. Serpentine, California's State Rock, often contains chrysotile asbestos.

## Where can asbestos be found?

Asbestos silicate minerals separate into heat resistant, thin, and flexible fibers. Because of these properties, asbestos has been utilized in a variety of building construction materials for insulation and as a fire retardant. It was most commonly used in construction prior to 1981. See the image below for the most common areas of the home where asbestos containing materials (ACM) can be found.

## Is asbestos dangerous?

Asbestos fibers can be dangerous if not handled properly. Non-friable ACM are generally safe to handle, if they are in good condition. These are materials that are solid, not crumbling or creating a powder. An example of this is vinyl floor tile that contains asbestos. Friable ACM can be crumbled, pulverized, or reduced to powder by hand pressure when dry. Friable asbestos can release fibers into the air, making it easier to breathe in. An example of this is sprayed-on ceiling insulation, which can fall off the ceiling and get into the air. The more asbestos a person is exposed to, the more likely they are to get an asbestos-related disease. More details on asbestos-related diseases can be found at [https://www.atsdr.cdc.gov/asbestos/health\\_effects\\_asbestos.html](https://www.atsdr.cdc.gov/asbestos/health_effects_asbestos.html).

## What to do if you suspect there is asbestos in your home?

It is not possible to determine if a product contains asbestos just by looking at it. Unless a product is known to contain asbestos, the only way to determine if it does contain asbestos is to have it lab tested.

It is important for friable ACM to be handled by a professional. When remodeling in a home built before 1981, make sure to hire a contractor that is certified to handle & properly dispose of ACM. Riverside county landfills DO NOT accept ACM, so Morongo residents can not place these products in curbside trash bins.



Where asbestos can be found in the home



Image by: Asbestos.com

- |   |   |
|---|---|
| <b>A Exterior Surfaces</b>              | <b>F Electrical Equipment</b>               |
| 1. Roof Felt & Shingles                 | 1. Recessed Lighting                        |
| 2. Window Putty                         | 2. Wiring Insulation                        |
| 3. Cement Asbestos Board Siding         | 3. Fuse Boxes                               |
| <b>B Insulation</b>                     | 4. Outlets                                  |
| 1. Vermiculite Insulation               | <b>G Appliances</b>                         |
| 2. Batt Insulation                      | 1. Refrigerators/ Freezers                  |
| <b>C Flooring</b>                       | 2. Range Hoods                              |
| 1. Vinyl Asbestos Floor Tile            | 3. Woodstoves (Heat Reflectors)             |
| <b>D Interior Surfaces</b>              | 4. Clothes Dryers                           |
| 1. Popcorn/ Sprayed-on Ceilings         | <b>H Miscellaneous</b>                      |
| 2. Textured Paint                       | 1. Fireplace Logs                           |
| <b>E Boilers, Heating, &amp; Piping</b> | <b>I Automotive</b>                         |
| 1. Heat Source Covering                 | 1. Brake Linings, Gaskets, & Clutch Facings |
| 2. Door Gaskets                         |   |
| 3. Duct Linings                         |   |
| 4. Wall Gaskets & Linings               |   |

References: US EPA—Learn About Asbestos [www.epa.gov/asbestos/learn-about-asbestos](http://www.epa.gov/asbestos/learn-about-asbestos)

## Apple Fire: Year 3

Written by: Micah Knox, Environmental Specialist I

July 31<sup>st</sup>, 2020 marks the day California's Apple Fire was first ignited. A reaction between black soot and carbon emanating from a vehicle's tailpipe created a flammable material, which ignited and spread toward nearby brush and chaparral. The fire spanned a total of 33,424 acres, reaching areas such as Cherry Valley, Oak Glen, and the Morongo Reservation. Undisturbed wildlife was engulfed in flames through the northern section of the reservation, leaving nothing but scorched earth and dead timber. In spite of this, three years later, the land is beginning to recover. Although fire and other



Photo taken of firefighters battling the 2020 Apple Fire in Banning, California.

disturbances may bring visible ruin to a landscape, drive out many plants and animals, and revert biological communities to an earlier stage, the habitat is not lifeless! After the wildfire, the burnt trees decomposed, creating wood ashes. This ash contained necessary elements for plant growth such as: phosphorous, potassium, calcium, and boron. With this extra boost of nutrients, buried seeds could sprout shortly after the effects of the disturbance passed.

**Fun fact: Yerba santa has a hard time growing from seed unless extreme heat is introduced. During the Apple Fire, the heat from the fire cracked open the tough outer shell of the Yerba santa seed. This made way for the plant to sprout quickly and efficiently!**

Now, our landscape is in full recovery mode with early successional species dominating the scenery. Plants and animals were able to recolonize the habitat. Some may even have greater success from reduced competition. This process of a biological community's ecological structure evolving after a major disturbance is known as "secondary ecological succession."

Currently, a majority of the land is covered in yerba santa and low shrubs. The leaf foliage will begin to block sunlight to lower level plants, effectively removing them from the landscape and turning them into usable elements for continued plant growth. With the extraordinary progress we are seeing at year three, we are expecting a full ecological recovery by as early as the year 2070. The Morongo Environmental Protection Department will continue monitoring the area, assess potential threats, and implement planting projects to reestablish the beautiful landscape to be enjoyed once again by generations to come!



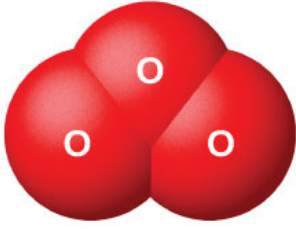
Photo of Yerba Santa growing on the Morongo Reservation.

*References: Klamath Siskiyou Native Seeds—"Heat Treatment: A Yerba Santa Story." [klamathsiskiyouseeds.com/2020/12/21/heat-treatment-a-verba-santa-story/](https://klamathsiskiyouseeds.com/2020/12/21/heat-treatment-a-verba-santa-story/); Desert Sun—"Apple Fire 80% contained, 33,424 acres burned, post-burn assessment underway." <https://www.desertsun.com/story/news/2020/08/13/apple-fire-80-contained-33-424-acres-burned/3367066001/>; Biology Online—"Secondary Succession." <https://www.biologyonline.com/dictionary/secondary-succession>*

RESOURCE CONSERVATION

# Ozone. Ominous or Okay?

Written by: Lina Luu, Environmental Specialist I & Dana Morey, Environmental Director



Ozone molecule

**What's Ozone:** Ozone, or O<sub>3</sub>, is made of three oxygen atoms. It is seen naturally in Earth's atmosphere, but it can also be man-made. Depending on where it is in the atmosphere, it can have a positive or negative effect for life on Earth. At approximately 6 to 30 miles above Earth's surface is the "ozone layer" where stratospheric ozone is formed naturally. This layer is important because it blocks some of the harmful UV radiation from reaching Earth's surface. On the other hand, ground-level ozone, or tropospheric ozone, is man-

made and harmful to be exposed to.

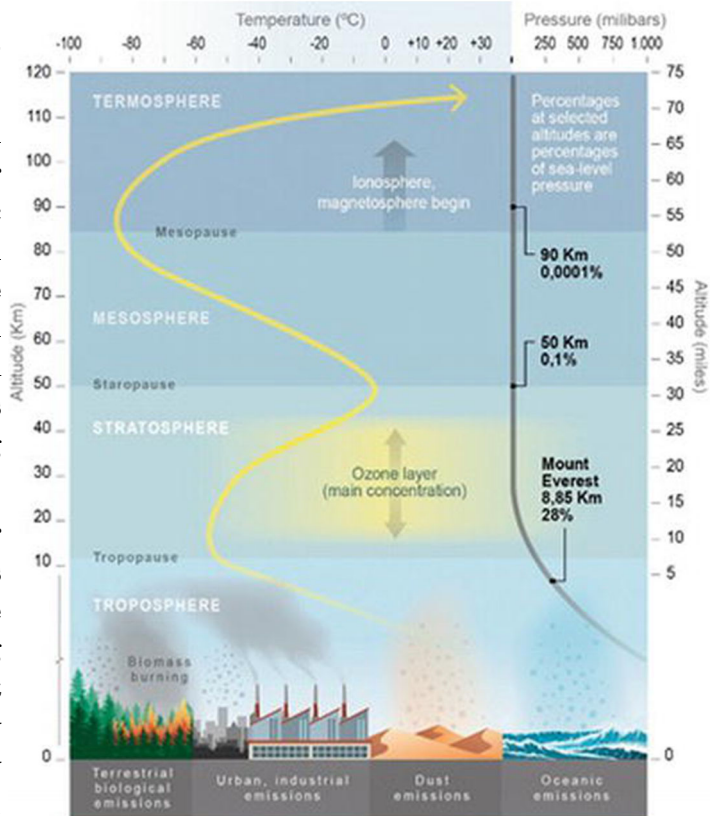
Ground-level ozone is formed through photochemical reactions between two major categories of air pollutants, volatile organic compounds (VOC) and nitrogen oxides (NO<sub>x</sub>) when they are exposed to sunlight. Nitrogen oxides are emitted from burning fossil fuels and sources can include cars, trucks, powerplants, and industrial boilers. VOCs are emitted from a variety of sources including dry cleaners, auto-body shops, painting facilities, and gas engines.

**Know your levels:** The Morongo Tribal Air Program monitors for ground-level ozone both at its Air Monitoring Station and through a network of five low-cost air monitors. The Air Monitoring Station generates high quality and robust data that can be used for regulatory decision making. The low-cost Community Air Monitoring Network captures and reports air quality in near real-time to help inform the community of poor air quality events.

High ozone concentrations are usually seen during the summer months and high ozone levels are historically observed on the Morongo Indian Reservation May through August. In July 2022, O<sub>3</sub> concentrations collected from the Community Air Monitoring Network were at a level deemed "unhealthy for sensitive groups" for 23.27% of the time. This means ozone concentrations were between 71-85 parts per billion (ppb). The higher the concentration is, the worse the air quality is. These levels are not unsurprising given the Reservation's proximity to the I-10 Freeway, the Truck Weigh station, the Banning Airport and the Union Pacific Railroad which all contribute NO<sub>x</sub> and VOC pollution. And add these emissions to sunny, hot, and long summer days for maximum ground-level ozone generation. Alternatively, cooler months saw low and good ozone levels—100% of the readings from November 2021 to February 2022 were within the green or good air quality index level.

**Knowing your air quality in real-time is crucial to protecting your health.**

If you are ever curious about the air quality around the Morongo Reservation, please visit [www.morongoir.com](http://www.morongoir.com)! It will show you real-time data on pollutants such as PM<sub>2.5</sub>, PM<sub>10</sub>, and ozone. You can also look on the "Air Quality Index" tab to see if the air quality is at a safe level.



This figure depicts the layers of the atmosphere and sources of emissions in the troposphere.

TRIBAL AIR PROGRAM

# Ozone. Ominous or Okay?

## (Continued)

The Air Quality Index (AQI) is divided into six categories and it is a good way to gauge how safe it is to breathe the air outside!

AQI categories depicting the level of health concern, the values corresponding with concentration levels, and a description of the air quality. To learn more about the Air Quality Index, go to <a href="http://www.airnow.gov">www.airnow.gov</a> !		
Levels of Concern	Values of Index	Description of Air Quality
Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

Ozone can cause respiratory irritation and can exacerbate lung diseases such as asthma, emphysema, and chronic bronchitis. Those at greatest risk from high ozone levels are children, older adults, and outdoor workers. To protect your and your family’s health, pay attention to the Air Quality Index levels and modify your outdoor activities to avoid exposure. For example, in the summer plan on exercising in the early morning hours instead of the afternoon or evenings when ozone levels are typically higher.

*References:*

EPA. *What’s Ozone?* [https://www.epa.gov/ozone-pollution-and-your-patients-health/what-ozone#:~:text=Ozone%20\(O3\)%20is%20a%20highly,lower%20atmosphere%20\(the%20troposphere\)](https://www.epa.gov/ozone-pollution-and-your-patients-health/what-ozone#:~:text=Ozone%20(O3)%20is%20a%20highly,lower%20atmosphere%20(the%20troposphere);); EPA. *Trends in Ozone Adjusted for Weather Conditions.* <https://www.epa.gov/air-trends/trends-ozone-adjusted-weather-conditions>; EPA. *Health Effects of Ozone Pollution.* <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>

Want to dive deeper into your air quality? The Morongo Community Air Monitoring Project Annual Data Report is now available for Tribal Members at <https://morongonation.org/tribal-air/>. You must be logged in as a member to view the document.



The California Air Resources Board (CARB) awarded \$100,000 dollars to the Morongo Community Air Monitoring Program to maintain the air monitoring network for three years, communicating real-time air quality data to the Morongo Community. The Morongo Community Air Monitoring Network is part of California Climate Investments, a statewide program that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy and improving public health and the environment—particularly in disadvantaged communities.



# Life at the Bottom of the Stream

Written by: Kimberly Miller, Environmental Specialist II

What do you think of when you picture life in rivers or streams? While answers like fish, frogs, or even ducks may immediately spring to mind, there are other organisms that occupy nearly every type of water which can be easy to overlook. Even though they may not always be easy to see with the naked eye, invertebrates are one of the most abundant members of aquatic ecosystems. Along with plants, invertebrates form the basis of the food webs that support those larger organisms like fish and frogs. They also play a vital role in breaking down organic matter like leaves and algae.



Crane fly larvae

There are many types of species that make up aquatic invertebrates. Worms, leeches, clams, snails, and insects are just some examples. In addition to insects that spend all of their life in the water, such as water beetles, many common insects live part of their life cycle in the water. Dragonflies, caddisflies, and mosquitos are just some of the insects that lay their eggs in water and spend their immature life stages in the water before becoming terrestrial as adults.



Dobsonfly larvae

These organisms can also be an important signal of the overall health of these ecosystems. Many water quality programs, including Morongo's Tribal Water Program, include bioassessment as one of the ways to assess water quality. This includes sampling benthic macroinvertebrates (organisms without a backbone living on the bottom of the stream that you can see without a microscope) and identifying them. Some benthic macroinvertebrates are very sensitive to pollution and can

only live in very clean water (like stoneflies and alderflies). Other species can tolerate a lot of pollution and can be found in very dirty water (like leeches and worms). The amount and type of invertebrates are compared to reference conditions or what would be expected in a similar waterbody without any pollution or habitat disturbance. If there are a large number and high diversity of sensitive organisms, it can be assumed that the water remained in good condition for several months (the length of the organism's aquatic phase of the lifecycle). If only very tolerant organisms are found, it is likely that there is something wrong with the waterbody. This can lead to water programs further investigating chemical water quality data, potential pollution sources, or the physical habitat available in the stream.



Caddisfly larvae collected with a kick net

Next time you are at a stream, take a closer look at or underneath the rocks and see if you can spot some of these fascinating aquatic organisms. For more information check out EcoSpark—Learn Benthics <https://www.ecospark.ca/learn-benthics>; US EPA—Indicators: Benthic Macroinvertebrates <https://www.epa.gov/national-aquatic-resource-surveys/indicators-benthic-macroinvertebrates>.



Diptera (fly) larvae attached to rocks

TRIBAL WATER PROGRAM

# Western Burrowing Owl (*Athene cunicularia hypugaea*)

Written by: Lindsey Freetly, Environmental Intern

When we think of owls, one of our initial thoughts might be that they live in trees and are nocturnal, this is not the case with the Burrowing Owl. This species creates its nest underground and is active during the day, especially during the breeding season. Spotting one is not difficult due to their distinct bright yellow eyes and long legs. Adults are brown with white spots and the younger usually display a bit more white. You can find them posted up on a fence or on the ground which is how they hunt for insects and small animals. No larger than the American Robin, the Burrowing Owl measures on the smaller side in comparison to other owls. Because of this trait, this ground dwelling species has easier access to preexisting burrows that were created by other ground dwellers. The Burrowing Owl prefer to live in flat desert areas, like some of the open lots and fields here on the Morongo Reservation. Being so unique, they have very specific needs to sustain a thriving owl population.



As monitoring and research continues for this subspecies, new findings and realizations come to light. It is evident that with the influx of rapid urbanization and habitat fragmentation, the Burrowing Owl population is declining. Another threat to the species are pest control programs, which wipe out their food source and interrupt the ecological growth and biodiversity of the animal's habitat. The Burrowing Owl is designated as a Species of Special Concern here in the state of California and is federally protected by the Migratory Bird Treaty Act. Mitigation strategies of relocating the owls and observing how they handle these transitions are a primary focus for conservationists. With the main issue at hand being commercial and industrial development, the odds of them flourishing and populations increasing seems slim, but not impossible. They need assistance, especially if local breeding populations do not migrate. Land must first be managed with consideration of potential impacts. Mitigation strategies, including development of artificial owl burrows can later be implemented, which has been discussed by the San Diego Zoo Wildlife Alliance.

Morongo has assisted in conservation efforts by working with the San Diego Zoo Institute for Conservation Research, and California Department of Fish and Wildlife back in 2017. The team executed a project to test the consequences of passive and active relocation methods in order to help mitigation efforts succeed. Burrowing Owls from Morongo were used as part of the control group. Although protection efforts and research continues, the reality in the survival rate of this magnificent species relies on the unpredictable timing and location of development projects.

Ways that our community can contribute toward protecting the Burrowing Owl and other sensitive species, such as the desert tortoise, is to become knowledgeable of the habitat they subsist on and to enjoy from a distance. Another consideration to be mindful of is disturbing owls during construction and when using an area. If signs of an active burrow are present, especially during nesting season February 15 to August 31, it is best not to disrupt that area.



*References: California Department of Fish and Wildlife— Staff Report on Burrowing Owl Mitigation; Burrowing Owl Survey Protocol and Mitigation Guidelines <https://wildlife.ca.gov/>. San Diego Zoo Wildlife Alliance—How We're Helping to Save the Burrowing Owl <https://science.sandiegozoo.org/species/burrowing-owl>.*



## Upcoming Events



### Household Hazardous Wastes Drop-Off

**Friday  
July 21, 2023  
9am to 12pm  
Behind Public Works**

Staff available on-site to collect, sort, and store materials.

**\*Open to Morongo Residents & Tribal Members Only\***

- Cleaning Products
- Paints
- Pesticides
- Oil & Antifreeze
- Sharps & Medication
- Batteries
- Electronics
- Bulbs

### September-October Vehicle Removal Months!

#### Vehicle Removal & Recycling

Email [epd@morongo-nsn.gov](mailto:epd@morongo-nsn.gov) or call 951-755-5128 to schedule the safe & secure removal of your vehicle.

\*Open to Morongo residents only



### Morongo Reuse Center

Donate usable household items or take what you need for FREE during the HHW Drop Off Days. Available items may include paints, light bulbs, pool chemicals, and pesticides. \*Open to Morongo Residents & Tribal Members Only\*



This and previous newsletters are available at <https://morongonation.org/environmental/>. If you would like to join our email list or would like a hard copy mailed to you, let us know at [epd@morongo-nsn.gov](mailto:epd@morongo-nsn.gov) or 951-755-5127.



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