

NETIQUETTE OF CONFIDENTIALITY

DON'T PUBLICIZE OTHER'S EMAIL ADDRESSES — Most people receive messages that raise the question how did the author find our email address, so we can all appreciate this particular rule. It is considered unprofessional and rude to distribute other people's email addresses via email or posting messages to persons unassociated with the communicating parties.

DON'T SEND WHAT YOU DON'T READ — It's inappropriate to forward an email you haven't read, or send someone an attachment you haven't opened. It can prove to be an embarrassing incident if the email or attachment contained inaccurate or unprofessional information.

REMEMBER ARCHIVING — It's important to remember that mailing lists, listserves, and groups have systems that archive information. If you don't want your words and messages archived and brought back at a later time, then don't press send. This can be even more important if your message is of a confidential nature that shouldn't be discussed electronically or if it involves other people.

RESPECT COPYRIGHT — It has become quite easy to find information on the Internet, put it in an email message and send it, giving the reader the impression that they are your words. Whether it was the sender's intent to take credit for the idea or not, it's hard to tell because of the emotionless atmosphere of the Internet. Always give credit where credit is due. Also, if

you are forwarding someone else's work, don't change or edit their words, grammar or structure, even if you think you are correcting their typos and/or mistakes.

The Internet has created an easy and affordable way for people to communicate. With budget and geographic issues, the Internet will continue to become a critical aspect in our private and professional lives. By following these simple rules of thumb, you will quickly become one of those people your family, friends and co-workers appreciate communicating with.

SOURCES

The UCLA Internet Report: Surveying the Digital Future. UCLA Center for Communication Policy. 2001

Shea, Virginia. Net Etiquette. published by Albion.com. <http://www.albion.com/catNetiquette.html>

Merrill, Laura. Top Ten Rules for Netiquette. Manager of Cooperative Education, <http://ulmercenter.wordpress.com/2006/11/03/top-ten-rules-for-effective-netiquette/>

Living Internet. <http://www.livingInternet.com>

Von Rospach, Chuq and Spafford, Gene. Net Citizens. <http://web.jjc.edu/Dept/Tech/EET/SyllabiPDF/EET108SyllabusF05.pdf>

Randall D. Babb,
Arizona Game and Fish Dept



A Rattlesnake Medley

Randall D. Babb, Biologist, Arizona Game & Fish Department

RATTLESNAKES — Misunderstanding, hatred, and fear have followed them through history like a bad credit rating. "I saw a rattlesnake 6 foot long, it was as thick as my arm." "Baby rattlesnakes are the most dangerous because they can't control their venom." "I was chased by a rattlesnake." "Mohave rattlesnakes are the mean ones." "Rattlesnakes travel in pairs." "Rattlesnakes are more toxic when they first emerge from hibernation because they haven't used their venom for a long time."

In the western movies, no one survives the bite of a rattlesnake and an agonizing death comes within minutes, if not seconds. The epic proportions of this list of misnomers is only eclipsed by the exaggerations themselves. As often is the case in biology, the truth is a tad less sensational, but no less amazing. Let's start with the facts.

Arizona is the rattlesnake capitol of the United States. Currently 12 of the 16 recognized species of rattlesnakes found in the United States are found in Arizona, meaning about 1/3 of the known species of rattlesnakes are found in Arizona. One of these species of rattlesnakes is found only in Arizona within the United States and some mountain ranges in the state

may harbor as many as eight species of rattlesnakes. Because many different species of rattlers may live in relatively close proximity to each other, they must partition the resources to avoid undue competition. If all the species of rattlesnakes did the same thing, the habitat could not support the numbers or variety of rattlers that it does. This makes rattlesnakes excellent examples of habitat partitioning or niche filling. For example, some species of rattlesnakes prefer rocky desert slopes while another may inhabit canyons in mesic woodlands, and yet another thrives in dry desert flats or dunes. Other species are dietary and habitat generalists and are found in a variety of different habitat types.

All rattlesnakes give live birth. Young of most species are born from late July to August. A few give birth in September and October. All young are born "fully loaded" meaning they are capable of delivering a prey-killing bite from birth. The venom of the young of at least some species of rattlesnake is more potent than the adults of the same species on a drop for drop basis. This gives young rattlesnakes an advantage in acquiring those first few precious meals. This does not mean that young rattlesnakes are more dangerous than the adults of the same species. Young rattlesnakes produce far less venom than their adult counter parts making them less a threat to humans. The young of at least some species stay with their parent for a week or so after birth. No information or experience is passed on from the adult to the young. Rattlesnakes are born with all the information they need to survive. They are "hardwired" for survival.

Rattlesnakes share many adaptations with a variety of other venomous snakes and are among the most highly evolved of all pit vipers. Pit vipers possess special heat sensing pits, called loreal pits, located below and in front of their eyes. These pits are capable of detecting minute differences in temperatures, as little as 1 degree Fahrenheit. Because the nerves from the loreal pits tie into the snake's optic nerves, biologists believe that pit vipers actually receive an infrared image in the brain and therefore virtually "see" with these pits. These loreal pits allow a snake to locate a warm-blooded prey item in total darkness.

All rattlesnakes possess venom glands. These are modified salivary glands and are located in the "cheek" area behind and below the eye in the upper jaw. They have folding, hollow fangs, which inject the venom deep into the victim. Rattlesnake venom toxicity varies greatly from species to species and even geographically amongst a particular species. Combine this with additional variables like bite location and amount of venom administered and the results of any rattlesnake bite is extremely difficult to predict. There is essentially no average rattlesnake bite. Snake venoms are complicated and poorly understood. Rattlesnake venom is a virulent combination of proteins that kill through a variety of methods. Some venoms block signals sent from nerves to organs and muscles. Some destroy tissue while others block the flow of salt to muscles, rendering them useless. Despite biologists generally referring to rattlesnake venoms in broad terms such as hemotoxic or neurotoxic, any single species or individual rattlesnake may possess several different types of toxins.

Though bites from rattlesnakes are not uncommon, deaths resulting from their bites are. In the period from 1989-1998, Arizona's Poison Centers in Tucson and Phoenix consulted on 1,912 bites (that's about 191 bites per year). Of these 1,912 bites, only four resulted in fatalities to humans. That translates to about one fatality every 2.5 years. So, statistically this means that you are far more likely to die by slipping in your bathtub or being struck by lightning than from the bite of a venomous snake. In fact, as disturbing as it may be, statistics say you are more likely to be killed by your spouse than to die from a rattlesnake bite. No doubt this is a greater danger for some of us than others.

Another specialization—the one from which rattlesnakes receive their name—is the rattle. Many species of snakes make sounds when they are disturbed or upset. Some species hiss loudly. Others even rub their scales together and make a scraping or hissing sound. But no other snakes in the world possess such a unique noise making mechanism as the rattle. The development of the rattle is shrouded in mystery. Some biologists believe that rattlesnakes first

developed horny knobs on their tails to attract prey by a process known as caudal luring. Many snakes throughout the world use their tails as a mechanism to attract prey close enough to strike. Often the tail is colored differently from the rest of the snake's body. We see this phenomenon in some of our rattlesnake species. Baby sidewinders and massasaguas have yellow colored tails and have been observed to use them to lure prey such as lizards into close range. Other biologists believe the rattle evolved to aid rattlesnakes in avoiding being stepped upon by the many large grazing animals that inhabited North America during prehistoric times. Though exactly why and how the rattle evolved is a mystery, its purpose today is quite clear; to warn potential predators, or other animals that present a threat, that the rattlesnake means business. The rattle is composed of the same material as are the snake's scales, the same stuff hair and fingernails are made of; keratin. The snake grows an additional segment to their rattle each time they shed their skin. You cannot tell the age of a rattlesnake by the number of rattle it has. Rattle segments are often broken off and a rattlesnake may add numerous segments in a season.

Rattlesnake diets are as varied as the snakes themselves. Depending on the species, prey may include small mammals, birds, reptiles, amphibians and invertebrates. Prey are killed with their venom and consumed whole. Due to the loosely constructed nature of the serpent's skull, most snakes can easily consume prey items four times the size of their head or larger. That is akin to a human being swallowing a 30 lb watermelon whole. Interestingly, it has been recently discovered that centipedes are an important food item for the juveniles of a few different species of rattlesnakes in southeastern Arizona. Rattlesnakes are "sit and wait," or ambush predators. Research shows that they select an appropriate site based on recent use by the desired prey. It is thought that they determine this site based on scent left behind by mice, rats, lizards or other potential prey. Ambush sites may be along a regularly used runway or trail, a limb or rock used for basking, or access to a tree or near a burrow or other hiding spot. Rattlesnakes may inhabit an ambush site for weeks on end, waiting for their prey to come by. To be a successful sit and wait predator, rattlesnakes must have low metabolic requirements and be energetically efficient. Efficient metabolisms allow snakes to thrive on just a few meals a year. This means snakes are able to exploit habitats that animals with higher energy intake requirements have great difficulty exploiting. Research on black-tail rattlesnakes in southeastern Arizona indicates that these snakes catch about four food items in a year.

Take a few moments to meet the rattlesnakes of Arizona by visiting http://www.azgfd.gov/w_c/arizona-rattlesnakes.shtml.



Randall D. Babb,
Arizona Game and Fish Dept

TEN SUGGESTIONS FOR LIVING/ TRAVELING IN SNAKE COUNTRY

1. Understand that snakes, including rattlesnakes, are important parts of Arizona's ecology and they provide far more benefits than danger. If you live in snake country you will have snakes... accept the fact and take the necessary precautions for you, your family and pets.
2. Do not place your hands and feet in places where you cannot see what's there.
3. There are no chemicals known that successfully and consistently deter snakes.
4. If you own a lot of land, leave rattlesnakes alone that are not frequenting places where people are. Don't attempt to make your property rattlesnake free but rather remove animals that present an actual threat. It is virtually impossible to make a large area snake proof.
5. Don't create places for rattlesnakes to hide such as wood or junk piles.
6. Don't try to remove rattlesnakes from your property yourself, but rather have someone with experience do it. Many people are bitten while trying to catch or kill rattlesnakes.
7. If you live in rattlesnake country check play areas prior to letting children or pets outdoors.
8. Be aware that you may encounter a rattlesnake any warm day of the year. Typically, snakes are most active from late March through early November in Arizona's lower elevations.
9. Do not walk about in snake country barefoot or in sandals or other light foot wear. Always use a light when walking at night.
10. Keep emergency numbers handy and transport snake bite victims to a medical facility as soon as possible. There is no first aide treatment for a snake bite.