Newsletter
El Paso / Las Cruces

Chihuahuan Desert Wildlife Rescue Inc.

Vol. 15, No. 4 **THE EAGLE** **2004**

Beat the Heat

by Peter Friederici

On a June day in western Arizona, the sun is a white hole burned into an endless blue sky. Silence grips the desert as the mercury rises – 90 degrees at 9 a.m., 100 at 11 a.m., 110 by 3 p.m. The desert floor would burn the bare feet of a careless walker within seconds. By mid-afternoon, the temperature of the ground may top an astonishing 160 degrees.

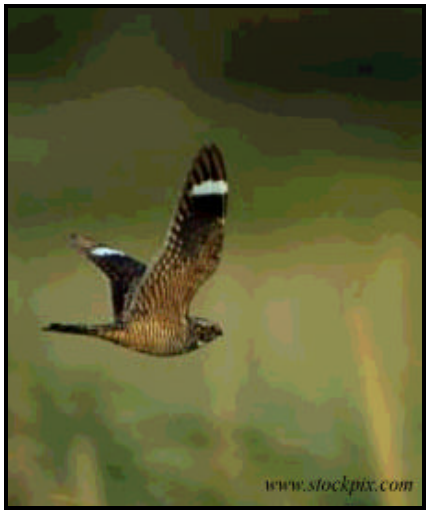
The area's human residents seldom adventure outdoors in these conditions. They're inside, sipping refrigerated drinks in the comfort of air conditioning. Many of the desert's mammals and reptiles avoid the heat by hunkering down in underground burrows during the day, emerging only at dusk to forage or hunt.

Desert birds can't avoid the heat so completely. Cutting through the silence of the hottest desert days is the faint tinkling note of a Black-throated Sparrow, or the agitated bzeep! of a Loggerhead Shrike. These and other birds manage to live outdoors and above ground through the hottest days, amply rewarding the diehard birder who ventures out (preferably at dawn or dusk).

I've worked as a field ornithologist in some pretty hot weather in Arizona, and I've come to feel awe at species like the Common Poorwill and Lesser Night-hawk, which incubate their eggs on the ground. Even birds that live in other climates have to tolerate hot temperatures on occasion. I get through 100-plus-degree days only with copious amounts of water, a wide-brimmed hat and frequent rests in whatever shade I can find. How do birds manage to survive and reproduce in such extreme conditions?

Built-in Defenses

The human body responds to high temperatures by sweating. Water cools the skin as it evaporates, so sweating is a fine way to keep our body temperature below dangerous levels, as long as water is plentiful.



Lesser Nighthawk

Birds don't have sweat glands. They do have ample down, which is a superb insulator against cold and heat. The air in down insulates; birds lay their feathers flat against their bodies in hot weather to exclude air. That allows moisture – and with it, heat -- to dissipate from the skin to the atmosphere.

More importantly, birds pant. Hot birds often can be seen with their bills agape, allowing air to pass through --and cool -- their moist mouths and air passages. In many species, the throat can be seen rapidly moving in what ornithologists call "gular fluttering." Birds with large mouths, such as nightjars, are particularly effective at cooling themselves in this way.

Panting is an effective way to keep cool, but like sweating, it uses lots of water. The most well-adapted desert birds tolerate a high rate of water loss. A White-winged Dove can lose 20 percent of its body water -- a proportion that would kill a person -- and then replenish it in a few minutes at a spring or creek. Doves tend to prosper in desert conditions, because many species can readily find and reach distant water sources in order to be able to afford a high (*continued on page 2)*

Beat the Heat *(continued from front)*
rate of water loss.

Desert birds also have high body temperatures. Hikers quickly notice when temperatures exceed the 98.6-degree human norm: It becomes much more difficult to keep cool. At 107 degrees, the human body stops functioning, and even core temperatures in the low 100s are stressful. In hot conditions, the body has to work hard --and sweat copiously -- in order to get rid of that potentially deadly excess heat.

Birds, with their high metabolisms, maintain a higher temperature; Gambel's Quail has a normal temperature of 107 degrees. That means it can wait to begin shedding excess heat much longer than human beings can. Birds also tolerate elevated body temperatures better than we can; a temporary 6-degree rise in temperature is a dangerous fever in humans but a normal and harmless occurrence in many desert birds.

Gambel's Quail

Using the Surroundings

Even with these physiological advantages, birds need to carefully manage their temperature budgets and tend to be most active in the early morning and evening during hot weather. A Curve-billed Thrasher actively forages just after dawn on sunbaked cactus flats and even takes breaks in order to sing from the exposed top of a cholla or scrub mesquite. After noon on a summer day, it's likely to be difficult to find. The thrasher waits out the hottest hours in the shade of a shrub or small tree, conserving water by minimizing the need to cool.

The desert often looks monotonous to human eyes, but to its resident birds, it includes an intricate patchwork of micro-climates. A thrasher, a quail or another ground-dwelling bird escapes the worst heat merely by rising an inch or two above the superheated surface. Small birds, such as Verdin or Black-tailed Gnatcatcher, take advantage of tiny patches of shade provided by the stems of leafless trees. I've driven along many desert roads at midday and flushed copious numbers of Horned Larks and Black-throated Sparrows from the narrow strips of shade provided by fence posts or by foot-high shrubs.

A 1993 study of Phainopeplas by Glenn E. Walsberg showed that birds inhabiting an Arizona riparian area in summer spent significantly more time in shaded sites than did members of the same species at a cooler location in California.

Some birds create their own shade by building roost sites. Both Cactus Wren and Verdin build round, domed nests to shelter their young, but they also build somewhat smaller roosts to protect themselves from predators and from the elements. Insulated with feathers and fur, these structures are markedly cooler and moister than their surroundings during summer. They are ingeniously situated, too. When building nests early in the year, Verdin orients the entrance away from the prevailing winds to guard against excessive cooling. Roosts built during the hot months, though, are oriented to catch the breezes and facilitate cooling.

Keeping Eggs Cool

Adult birds generally avoid the hottest conditions, but eggs and chicks can't, making successfully raising young the greatest challenge for many desert species. Heat spells occasionally spell "disaster" for nesting birds in exposed situations. In 1979, a single 100-degree day on Santa Barbara Island off the Southern California coast caused nearly 90 percent of Western Gull chicks in parts of a colony to die. Desert birds routinely nest in much higher temperatures. How?

For many species, the answer is location, location, location. Careful nest placement significantly lowers heat stress. Prairie Falcon often nests on north-facing cliffs with reduced solar radiation. Gila Woodpecker and Gilded Flicker, both of which nest in giant cacti, tend to orient their nest cavities toward the northwest to limit direct sun and maximize exposure to cooling winds. Bald Eagles that nest in the desert Southwest don't situate their nests in particularly cool locations but begin nesting much earlier than eagles elsewhere -- often in early January -- to fledge young before the hottest time of year.

Birds that nest in the open, though, don't have such options. White-winged and Mourning Doves nest in sparse trees that provide little shade. Many species, such as nightjars and shorebirds, nest on the superheated ground in places largely lacking shade.

The optimum temperature for incubating eggs is about 96 degrees. More heat can kill; chicken embryos, for example, die when egg temperatures remain at 104. Remarkably, the eggs of some ground-nesting birds themselves remain cooler than the ground. That's because even eggs that are dark-colored *(continued on page 5)*

* CDWR DIRECTORY *
www.whc.net/cdwr

Whom can you call in the El Paso/Las Cruces area when you find an injured/orphaned wild bird/animal?

EL PASO AREA

CDWR CHIEF DISPATCHERS

Helen Bigelow.....505-882-2910
Debbie Lofton 915-772-6011

EDUCATIONAL PROGRAMS

Gloria Villaverde..... 577-9505

REHABILITATORS

Central/East
Bill Howe (turtles/snakes/lizards/small exotics)..... 772-0695
Debbie Lofton (birds/water birds/sm raptors/sm mammals). 772-6011
Mickey Rupprecht (small birds)..... 774-9997
Gloria Villaverde (reptiles)..... 577-9505
Sheila Barnes (birds) 772-8399

Northeast -
Charles/Carrol Bella (raptors/reptiles/mammals)..... 751-4711
Holly Sanchez (small birds)..... 472-2586
Deacon Foote (turtles & iguanas)..... 757-9330

West -
Helen Bigelow (raptors).....505-882-2910
Carol Miller (water birds) 584-7088
Josie Karam (small mammals/birds/turtles)..... 920-7867

COOPERATING VETERINARIANS

Central -
El Paso Veterinary Hospital, 4101 Montana..... 566-7387
Montana Animal Clinic, 1015 Chelsea..... 778-9588
El Paso Animal Emergency Center, 2101 Texas..... 545-1148

East -
Johnsen Animal Hospital, 1851 N. Lee Trevino 592-6200
Desert East Animal Hospital, 11635 Pelicano..... 855-4100
Eastwood Animal Clinic, 9509 Montana..... 593-0713
Americas Animal Clinic, 630 Americas Ave. 858-1971
Animal Clinic, 7184 Alameda..... 778-5355

Northeast -
Skyline Veterinary Hospital, 4424 Titanic..... 755-7647
Northeast Veterinary Clinic, 9405 Dyer 755-2231
Fairbanks Animal Hospital, 5320-C Fairbanks 757-8387
Harwood Veterinary Clinic, 4404-A Edgar Park..... 755-5653

West -
Crossroads Animal Hospital, 4910 Crossroads 584-3459
Country Club Animal Clinic, 5470 Doniphan..... 833-0645
Anthony Animal Clinic, 901 Franklin, Anthony TX..... 886-4558

TRANSPORTERS/TROUBLESHOOTERS

Northeast -
Joe/Inga Groff 755-2957
Charlene Ruddock 755-5575
Nancy Bain 822-9228

West -
John/Jane White.....505-589-3320
Susie Jensen 877-4036

East -
Linn Anderson..... 859-5413
Alan Phelps..... 598-2103

Chaparral, NM -
Jochen Lange……. 824-3090

LAS CRUCES AREA

EDUCATIONAL PROGRAMS

Geri Tillett..... 522-4966

REHABILITATORS

Geri Tillett (birds)..... 522-4966
Shirley Crain (rabbits & squirrels) 382-4530
Las Cruces Reptile Rescue 373-1486

SILVER CITY

Margaret Cejka (birds, excluding raptors)..... 505-537-6624

COOPERATING VETERINARIANS

Calista Animal Hospital, 162 Wyatt Drive..... 525-1000
Jornada Vet Clinic, 2399 Saturn Circle..... 382-1710
East Lohman Vet. Clinic, 1700 E. Lohman..... 523-5654

TRANSPORTERS/TROUBLESHOOTERS

David/Sherri Byrd (raptors)..... 524-2314
Abe Mendoza 382-1732
Jack Diven Family 527-2661

General Meeting Announcement

Please Join Us!
Tuesday, January 25, 2005
7:00 p.m.
El Paso Community College, Northwest Campus,
6701 S. Desert Blvd. Room 45

Maria Trunk will give a presentation on the creation of an El Paso Regional Land Trust. A group of concerned citizens with ties to many community organizations is taking steps to establish a land trust in the El Paso region. With support and encouragement from the Texas Land Trust Council and the National Park Service's Rivers Trails and Conservation Assistance Program, the volunteer steering committee has launched The Frontera Land Alliance. Its mission is "to preserve significant lands that maintain and enhance the natural environment and cultural heritage of the Northern Chihuahuan Desert Region." Land trusts have a 100-year history in the United States. They work with willing sellers and donors to acquire and manage lands for a variety of conservation purposes. A land trust offers land-owners viable economic alternatives to selling their property for con-ventional development. Currently, there are 40 land trusts in the state of Texas, the youngest of which is The Frontera Land Alliance.

For more information contact Susie Jensen @ 877-4036

We Need Rehabilitators!

Training: January 15, 2005
8:30 am to 3:30 pm

This session will cover wrapping, splinting, wound management, medications and homeopathy. For more information please call Josie Karam at 920-7867

* CDWR *

El Paso / Las Cruces

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The Purpose of CDWR

Wildlife rehabilitation is the care of injured or orphaned wildlife for return, where possible, to the wild. Successful rehabilitation takes a lot of time, a lot of effort and no small amount of money.

It is challenging work, done by special people. Chihuahuan Desert Wildlife Rescue is a nonprofit organization which exists to help the rehabilitators in the El Paso/Las Cruces area. Our purposes are to:

- provide a volunteer network to assist active rehabilitators in their work
- support wildlife rehabilitation programs financially
- provide education and instruction in wildlife rehabilitation
- educate the public about wildlife conservation problems
- work for the reduction of pressures on native wildlife from domestic animals and humans

Ecosystems and the Future

Environmental issues are no longer wild theories by treehuggers. More and more it has become obvious that our future depends on healthy ecosystems. At the forefront is the demand for more and more water, and not just water, but water suitable for agriculture and safe enough to drink.

Private interests buying up land and water rights are springing up all over, trying to market water. T. Boone Pickens' Mesa Water Inc. is offering water from the Ogallala aquifer, which is already depleted in areas and dropping, causing possible harm to endangered fish in the Canadian river. A Houston Company announced it has 24 trillion gallons of groundwater from three counties west of Houston for sale.

The latest scheme to sell water is Rio Nuevo's attempt to lease state lands and find buyers, preferably in West Texas for the water they plan to extract. Presidio is jumping on the band wagon to get its share of water from state lands.

The city of Waco is trying to sell its treated effluent to downstream customers. The city of Austin wants to sell its treated return flows. The Lower Colorado River Authority and the courts will decide this question.

San Antonio has been approached by T. Boone Pickens, but will not make any deals unless sustainability and no negative results on neighboring areas can be proven. The Brazos River Authority, a state chartered steward of this river basin, which reaches from the Panhandle to the Gulf Coast is trying to increase by 421,000 acre feet its yearly available water through better management of reservoirs and more efficiently locking up the rights of treated sewer plant discharges. The authority plans to donate 100,000 acre feet to the Texas Water Trust to ensure water flow in the river for wildlife.

Here in El Paso, we deal not only with Texas law, but federal agencies, compacts, treaties and interaction with New Mexico and Mexico. Our surface water supplied by the Rio Grande is channeled, allocated only at certain times during the irrigation season and must be treated before it can be delivered to our households, Allocation can be cut due to drought and our city must buy its river water from our Irrigation District #1. This river water originates from snowmelts in Colorado and northern New Mexico, augmented by whatever rain falls into the river basin and by the agricultural return drains and the treated sewer water released upstream.

Any pollution by industry, agricultural fertilizer and pesticides, medication flushed down the drain and oil and gasoline washed from streets into the river must be dealt with.

When river water is not available, El Paso relies solely its groundwater. Our water utility has been busy drilling additional wells and refurbishing old ones to satisfy the demand. Brackish wells take special treatment and mixing with better quality water to deliver drinking water. The more wells, the lower the water table becomes.

This brings us to the most debated water law in Texas, the right of capture. This law permits anyone who owns the land and its water rights to drill a well and pump as much as the owner desires, even if all the wells around him go dry. He may use or sell this water. The creation of water districts to regulate this pumping is not really solving the problem, although it has helped in some areas. Attempts to change the law have so far been unsuccessful.

El Paso's "purple pipes" make treated sewage water available, and the program is quite successful. There is no legal challenges to the ownership of this water and the only loser is the river. Another proposal that seems to resurface calls for a water reservoir for El Paso's Water Utilities on part of the Rio Bosque. This is not compatible with the plans for the bosque as a wildlife refuge and recreation *(continued on back)*

Beat the Heat *(cont. from page 2)*
absorb very little infrared light and thus very little heat. That's a useful adaptation because bright white eggs that absorb little visible light (and little heat) are far more visible to predators than darker, mottled eggs.

During the hottest times, adults cannot leave their eggs or young nestlings alone. Studies of nesting Mourning and White-winged Doves in Arizona's Sonoran Desert found that these birds cool their eggs through direct contact with the adult's brood patch. The adult remains perched on the eggs, even while exposed to direct sunlight; the eggs, in turn, lose their excess heat to the adult's body and remain at a fairly constant 102 degrees as air temperatures reach 110.

White-winged Dove

While on the nest, doves conserve water by scarcely moving, and they are good at finding water to replenish their supply. In some of the driest parts of the Sonoran Desert, where free water is extremely scarce, White-winged Doves eat an average of 128 saguaro fruits each summer, consuming five and a half pints of cooling water.

The most rigorous nest sites, though, are on the ground. Incubating Crowned Lapwing, an African species that nests in shadeless locations where ground temperatures typically exceed 120 degrees, often rise up on their legs as if to shade their eggs or young. A recent study suggested that an adult doesn't use this behavior to provide shade but rather to cool itself by rising above the extreme heat at ground level. By regularly rising and cooling, and then returning to a position of direct contact with its eggs, it can cool the eggs as doves do.

Snowy Plovers use another trick as they nest on lakebeds in western North American. Because they usually nest near water, adults wet their bellies before returning to incubate, providing a direct evaporative cooling effect for the eggs.

Nightbirds are Cool

That brings me back to my choice for the supreme birds of the desert – the nightjars that forage by night but nest on the ground in the heart of summer. Common Poorwill, it turns out, is more efficient than any other bird at dissipating body heat at high temperatures.

Versatile Vultures

Perhaps the most ingenious, if unappealing, cooling techniques comes from vultures. In hot weather, they urinate on their bare legs. The leg colors of Black and Turkey Vultures are, in fact, something of a temperature index. When the temperature exceeds about 70 degrees, the birds' legs often turn white from these regular discharges of cooling fluid.

Vultures are ubiquitous in the Sonoran Desert , promoting thoughts of mortality in the desert hiker unsure of his or her water supply. With feathers black as night, the birds soar effortlessly on rising columns of hot air, often circling high enough to enter cooler layers of the atmosphere. That's how the survive, forage and thrive!

Lesser Nighthawk, too, cools off superbly well, in part because both species' huge mouths allow for rapid evaporative cooling. Both species also gain ample water from their soft-bodied insect prey; indeed, Common Poorwill apparently doesn't need to drink free water at all.

Lesser Nighthawk is ubiquitous along the lower Colorado River, which often has the nation's highest temperatures on summer afternoons. Ground temperatures routinely reach 160 degrees. Like other birds, nighthawks manage by having high body temperatures, but they go a step further. Their brains are typically two degrees cooler than the rest of their bodies, so they can get hotter than other birds without disrupting vital brain functioning. When things get too hot on the ground, they fly around -- not foraging but merely contacting higher, cooler air – during the hottest time of day.

Female nighthawks incubate during the day and don't have that option. Instead, they remain on their eggs, cooling themselves off with nonstop gular fluttering and facing away from the sun to minimize exposure. If there's a patch of shade nearby, they may even move their eggs into it. Common Poorwill does the same. It can't leave the nest, because the direct sun would kill the young in minutes.

These birds are marvels of endurance and a testament to life's ability to thrive in harsh conditions. When I'm out sweating and looking for the nearest tiny patch of shade, I take my hat off to them --just for a split second, that is, because my brain isn't any cooler than the rest of me.

- Wildbird Magazine, July/August 2001. Arizona freelancer Peter Friederici escapes the summer heat by living in the mountains at 7,000 feet.

Chihuahuan Desert Wildlife Rescue, Inc.,
P.O. Box 96, Canutillo, Texas 79835

MEMBERSHIP APPLICATION

I hereby apply for membership in the Chihuahuan Desert Wildlife Rescue as a/an:

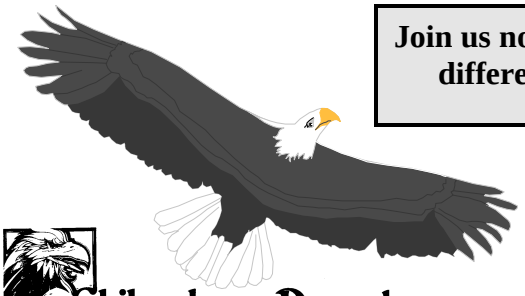
INDIVIDUAL: $10.00 _____
FAMILY: $15.00_____
CONTRIBUTOR: $25.00_____

Enclosed is my contribution for $_____
in addition to my membership

Membership gives you the opportunity to help orphaned and injured wildlife and to support the efforts of the CDWR volunteer rehabilitators. Membership includes a yearly subscription (4 issues) of the newsletter.

Name: _____
Address: _____
City:_____ State:_____ Zip:_____
Phone:_____ Email:_____

CDWR is a non-profit 501(c)(3) organization



Join us now and help make a difference for wildlife!

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Future *(continued from page 4)*

area. It seems to be back on the shelf for right now.

Protecting watersheds and arroyos is finally considered when developing lands in El Paso, however we have a long way to go when politics and profits enter the picture,

Of major concern to most El Pasoans is the future of the Castner Range. A number of people and organizations are working on creating a Land Trust to protect Castner and other vulnerable areas. This effort has succeeded in California and other states. It seems that although the public comments were against locating the new Border Patrol Headquarters on Castner Range Land, this location is being chosen.

Other federal lands in danger of irreparable harm are areas administered by the BLM in New Mexico. The Otero Mesa, one of the last undisturbed grasslands, home to rare and endangered wildlife, is being considered for gas and oil exploration. New Mexico Governor Richardson is fighting to preserve the Otero Mesa and other threatened areas.

For residents of our Westside the question of restarting the Asarco copper smelter is of great concern. Whether the smelter can operate without dangerous lead and arsenic emissions should be established before issuing permits to the company.

For more information call 755-2957. *- Inga Groff*

The very uprightness of the pines and maples asserts the ancient rectitude and vigor of nature. Our lives need the relief of such a background, where the pine flourishes and the jay still screams.

- Henry David Thoreau