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Sin City Goes Dry

The Mojave Desert, a place of subtle but magnificent beauty, is home to dozens of bird species, from flycatchers to loggerhead shrikes. But its future depends on the groundwater with which Las Vegas plans to fuel its ravenous growth engine.

By Ted Williams

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Last December I revisited Las Vegas, and for the first time my overriding mission was not to get away from it. I found Sin City strange and fascinating and utterly disgusting. But the sins that caught my attention were not the ones you might imagine. They had nothing to do with the hookers who flounce around the casinos with paunchy husbands vacationing from their wives, or the hydroelectric profligacy of claptrap signs and garish, cheesy buildings, or even the ceaseless thievery from 30 million to 40 million willing victims a year. There's a different kind of thievery going on here, and the victims aren't willing. Most aren't even human.

Thievery is a Las Vegas tradition. The city was built largely by thieves, including such organized-crime figures as Davey Berman, Gus Greenbaum, Morris Rosen, Benny Binion, and Bugsy Siegel. It squats in the Mojave Desert, one of the driest regions on earth in the driest state in the union. Yet Las Vegas has always grabbed and swilled water from its own and distant basins, thereby devastating desert ecosystems. Few U.S. cities have higher per capita water consumption.

In 1829, when Rafael Rivera, a scout from a Mexican trading party, stumbled onto the site of the future city, artesian wells sprang from the earth with a velocity that could suspend a grown man well above the ground. The oasis bloomed with wildflowers and native grasses. It came to be called Las Vegas, Spanish for "the meadows."

Unsustainable groundwater pumping started drying up these and other springs in the early 20th century. With the death of a major valley spring and creek in 1957, the world lost the Las Vegas dace, a fish that had survived and adapted to the desert from the age of sprawling glacial lakes. The city's growth—among the fastest in the nation—has been made possible by Lake Mead, a Colorado River impoundment created by the Hoover Dam. Under an agreement with Mexico and the other Colorado River basin states, the Las Vegas Valley—through its water manager, the Southern Nevada Water Authority (SNWA)—gets to pump 300,000 acre-feet per year from Lake Mead. An acre-foot is 326,000 gallons, enough to supply one family for a year.

That allocation, however, cannot sustain growth of the conjoined gaming and construction industries, which city fathers contend is essential for Nevada's economy. Their shibboleth, oft uttered verbatim, is "Grow or die." They envision no limits. The SNWA, which has been madly purchasing water rights, proposes to annually take 180,000 acre-feet of groundwater, mostly from rural east-central Nevada but also from Utah and California—and convey it to Las Vegas via an 84-inch-diameter pipe from as far out as 250 miles.

Within the 78-basin area likely to be affected are 20 federally threatened or endangered, wetland-dependent species and 137 wetland- or spring-dependent species with extremely limited distributions and that would have been listed had not the U.S. Fish and Wildlife Service essentially quit that process. The project is being fast-tracked by Congress and the Bush administration; if it is approved by the Bureau of Land Management (BLM), by local governments, and by the state engineer, work could start in 2009. Under orders from Washington, the Fish and Wildlife Service, the National Park Service, the Bureau of Indian Affairs, and the BLM have withdrawn their protests.

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The SNWA figures out how much water it can economically suck out of the ground and calls it "perennial yield." And the perennial yield that hasn't been allocated it calls "unused water." Unused water, it claims, is currently being "lost to evapotranspiration." In other words, it's being wasted on plants.

James Deacon, the eminent desert biologist from the University of Nevada at Las Vegas, for whom the extinct Las Vegas dace (*Rhinichthys deaconi*) was named, says it's pretty clear that if you take perennial yield, "all spring discharge and evapotranspiration will cease, there will be no underflow to other basins, and all plants that rely on groundwater will die." He agrees with the SNWA that there are some basins where perennial yield has not been fully allocated. But he points out that there are also basins where 250, 350, and even 600 percent have been allocated. "The aquifers interconnect," says Deacon, "and even without additional pumping the combined current allocation for the entire 78-basin area is 102 percent."

In September 2006 the SNWA sought (and at this writing awaits) approval by the state engineer of water-right applications for Spring Valley, an Audubon-designated Important Bird Area (IBA) that shares groundwater with Great Basin National Park. At the public hearing the SNWA claimed it had not gotten around to running its computer model to project effects on the water table, but when a National Park Service hydrologist ran the model it showed a 150-foot drop in the water table over 75 years. "SNWA announced that if it didn't get this water, growth would stop in Las Vegas," reports John Hiatt, chair of the BLM's Mojave-Southern Great Basin Resource Advisory Council and conservation chair of the local Red Rock Audubon Society. "It had about 50 witnesses lined up, and 40 were just political and development types saying they really, really wanted this water. This was a *technical* hearing, where you need to justify need for water on *technical* grounds. It is unprecedented, in my experience."

I stayed at the 3,933-room Bellagio Hotel and Casino, built on the Las Vegas Strip in 1998 for \$1.6 billion. The Strip contains eight of the world's 10 biggest hotels, and new ones are sprouting on all compass points. Currently there are 135,000 hotel rooms, and there'll be 41,000 more by 2010. Las Vegas Valley has a population of 1.8 million, and at the current growth rate that figure will double by 2030. Each month a square mile of virgin Mojave Desert habitat gets covered with houses.

There wasn't a word about water conservation in my room. The high-volume, high-pressure shower nearly drove me to my knees, and I could have hosted a cocktail party in the separate bathtub. Outside the Bellagio, at its 900-foot-long cement pond, I joined hundreds of tourists to watch the eruption of 1,203 individually controlled jets that blast water to heights of 244 feet. The show, which happens every 30 minutes, is computer-choreographed to lights and operatic arias. Close by are the Venetian Hotel and Casino, where you can take gondola rides through water-filled canals; the Mirage Hotel and Casino, where massive water eruptions issue from a fake volcano; the Treasure Island Hotel and Casino, where, on a freshwater sea, a Spanish galleon fights it out nightly with a British man-o-war; and the Mandalay Bay Resort and Casino, where you can surf on six-foot-high waves in a 1.6-million-gallon "wave pool."

Most of the water from these lavish displays is recirculated, but a great deal evaporates. As for indoor water, the SNWA and the gaming lobby argue that there's no need to conserve it because, after tertiary sewage treatment, most gets dumped into Lake Mead, and the city gets a gallon-for-gallon credit on its allocation.

Still, with all this indoor and outdoor extravagance it's hard to convince the public that it needs to commit to serious water conservation. And the torrent of effluent is polluting Lake Mead with sediment. To slow the flow and partially stabilize the eroding banks of the steep, seven-mile channel, the SNWA is installing riprap, gabions, and at least 20 cement weirs; but the flood intensifies. What's more, the effluent is laced with hormone

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disrupters from excreted pharmaceutical products such as birth-control pills. An eight-year study by the U.S. Geological Survey found sharply reduced sperm counts and mixed sexual characteristics in Lake Mead fish, including endangered razorback suckers. But the study is being suppressed by the Bush administration. "They've been sitting on this for two years," team leader Timothy Gross told *The Las Vegas Sun*. "They don't like the conclusions. We've been told specifically the issues are too sensitive, that it would inhibit economic development in the area."

Complicating the pollution problem in Lake Mead is the fact that the water-intake pipe is six miles downcurrent from the effluent outflow. The city's suggested solution: a \$750 million pipe to shunt the effluent into the middle of the lake.

"The response I used to get was: 'There's no need to conserve because we have this allotment of water from the Colorado River, and if we don't use it up, other states will,' " says environmental activist and 35-year valley resident Jeff van Ee. When Las Vegas approached the limit of its allocation about six years ago, the SNWA began a conservation-education effort. Now it promotes "water smart landscaping" and pays property owners to replace grass with desert-adapted vegetation.

But much more could be done. For example, cities like Tucson—which each day uses 114 gallons of water per person compared with Las Vegas's 174—charge a modest fee for the first 5,000 gallons a month, then sharply increase rates for additional usage.

Despite the SNWA's commendable if belated efforts, costly illusions remain in vogue, as van Ee and I observed in the city's outskirts. A case in point is the sprawling development to the west known as The Lakes, where Colorado River water evaporates into dry desert air from artificial, clay-lined impoundments with names like Lake Sahara. A few front yards are planted with native vegetation, but most grow Yankee-style turf, irrigated by automatic sprinklers that frequently operate in the rain. Streets here have wide borders of irrigated grass. From Lake North Road we turned onto Crane Lake Road, then Sandy Shores Road, then Cherry Springs Lane, past the Beachmont, Whalers Cove, Haven Beach, and Sunset Point. We exited onto Lake West Road. It never dawned on the developers or residents that the American desert has its own subtle, unique beauty.

Bob Fulkerson, director of a pro-water-conservation outfit called the Progressive Leadership Alliance of Nevada, and his community organizer, A.J. McClure, guided me to The Lakes at Las Vegas, on Sin City's southern flank—a bigger and even more ostentatious development in "a lush Mediterranean theme," as the promo barks, and built around even bigger artificial impoundments and diversions. Of the hundreds of mansions, many owned by such luminaries as Céline Dion (who croons regularly at Caesars Palace), I didn't see one that looked to be worth less than \$1 million. There is a Ritz-Carlton and a Hyatt. Coots darken four irrigated, palm-studded golf courses, parting and coalescing like quicksilver around mowing machines whose drivers vainly attempt to herd them to the water. Swimming pools abound. Pump-powered creeks feed plastic-lined ponds. A pump-powered waterfall tumbles hundreds of feet down the face of a sandstone cliff. The surrounding hills, sliced and diced by earthmoving machines, resemble Appalachian mountaintop-removal operations. Water jets blast construction sites to keep down the dust.

"We hired an engineer to do a study," declared Fulkerson, "and he found that 3,000 acre-feet a year evaporates from The Lakes at Las Vegas. That's enough for 12,000 people who live in apartments—just going into the air for rich people who hate the idea of living in the Mojave Desert, who want Massachusetts in Nevada. I think that's an abomination. To us, it's the most stark and immoral example of water waste in Las Vegas."

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Van Ee, who retired in 2005 after 34 years as an engineer with the Environmental Protection Agency, had landed in trouble with his superiors for, on his own time, defending the endangered desert tortoise in one of its last major strongholds—a remote valley 70 miles north of Las Vegas called Coyote Springs. In 1990, after Congress had transferred 49,000 publicly owned acres to Aerojet General for a rocket test site, the U.S. Fish and Wildlife Service sought to “mitigate” damage to critical habitat by outfitting 11 tortoises with radio tags. When van Ee publicly opined that the money would be better spent protecting other tortoise habitat, the EPA responded with a gag order. Then, after failing to get the U.S. attorney to prosecute him for felony conflict of interest on grounds that he had played Charlie McCarthy for the Sierra Club, it issued an official reprimand. With help from the Government Accountability Project, van Ee got the reprimand pulled, and, with counsel provided by the American Civil Liberties Union, successfully sued the EPA for its unlawful action, thus setting an important free-speech precedent for all federal employees.

Aerojet’s plan collapsed. But now Coyote Springs, its tortoises, and its groundwater are in the crosshairs of both Las Vegas’s water grab and its sprawl. Casino lobbyist and developer Harvey Whittemore, who since 2000 has contributed at least \$45,000 to Senator Harry Reid (D-NV) and who employs one of Reid’s sons as his personal lawyer, bought 43,000 acres of Aerojet’s property for \$25 million. He then sold part of the water rights to the SNWA for \$25 million. Now he’s developing Coyote Springs into a 159,000-home community with 16 golf courses. Another Reid son sits on the SNWA’s board.

Senator Reid is the chief architect of a series of land bills that have required the BLM to sell off vast tracts of public land to facilitate Sin City’s uncontrolled growth and groundwater project. In January 2006 the SNWA redesigned the project so Whittemore could tap into its pipeline for his development. A provision in one of Reid’s land bills moves a power-line right-of-way off the site.

Coyote Springs should be seen by all who believe the Mojave Desert is ugly. From the southeast corner, Audubon’s John Hiatt and I gazed out over rolling topography lit by the December sun and aglow with subtle shades of red, blue, brown, gray, and violet, every distant feature showing crisp through still, immaculate air. In places the native vegetation seemed almost lush—Joshua trees, cholla, beavertail cacti, hedgehog cacti, creosote bush, bursage, Mojave yucca, and, in the washes, catsclaw and honey mesquite. All around us jagged peaks soared into a cloudless sky: to our north the Delamar Range (much of it in federal wilderness), to our south the Arrow Canyon Range wilderness, to our east the Meadow Valley Mountains wilderness, and to our west the de facto wilderness of the Sheep Range. Whittemore’s first assaults on the earth were barely visible as dusty lesions along Route 93 and State Highway 168.

The groundwater under Coyote Springs runs down to the Moapa Valley, an Audubon IBA where Hiatt and I encountered silky flycatchers feasting on the mistletoe berries that sustain them through the Nevada winter, loggerhead shrikes waiting in ambush on snags and wires, undulating flocks of horned larks, and northern harriers dipping low over the floodplain of the aptly named Muddy River.

The Muddy is fed by “fossil water” that takes 10,000 years or more to make its way to surface springs but that diminishes quickly, as it has in the past few decades, when groundwater is diverted. The aquifer runs so deep that the springs average 88 degrees year-round.

Two of the largest thermal springs, and many smaller ones, are part of the Moapa Valley National Wildlife Refuge, established in 1979 for the benefit of the endangered Moapa dace, which exists only in this basin and only in about two miles of stream. Major habitat restoration is under way, so the refuge isn’t open to the public. But manager Amy Sprunger-Allworth and endangered-species biologist Cynthia Martinez showed us around.

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When the Fish and Wildlife Service acquired the property, it had been infested with California fan palms, salt cedar, and other invasive exotics that impeded and diminished flows. But the refuge has been eradicating them, and the natives are returning. With artificial barriers and a short-lived, organic fish poison called rotenone, the refuge is also winning the war against alien tilapia, which prey on the Moapa dace. "At last count we had 1,300 dace," said Sprunger-Allworth. "That's pretty encouraging because there were only 900 three years ago."

In the faster water the dace—olive-yellow and with a black spot near their tails—dashed around like trout fry, snatching food particles dislodged by the current. White River springfish, another imperiled thermal-spring species, ghosted through the clear, steaming pools. Along one stretch of stream that had been diverted through viewing windows, refuge staffers brushed algae from the glass, first gently dislodging the imperiled Moapa pebblesnails.

"We've got the highest-elevation aquifer spring in the valley," remarked Martinez.

"That means we get hit by 'the bathtub effect,' " Sprunger-Allworth added. "We'd see the effects [of groundwater pumping] first."

Unfortunately for such species as the Moapa dace, people like Martinez and Sprunger-Allworth don't run the Fish and Wildlife Service. On January 27, 2006—in apparent violation of the National Environmental Policy Act, the National Wildlife Refuge Administrative Act, and the Endangered Species Act—the service surrendered to the SNWA senior water rights needed for the survival of the Moapa dace and the rest of the valley ecosystem, thus clearing the way for Las Vegas's water grab and Whittemore's instant city at Coyote Springs.

Another of the hundreds of important habitats threatened by the SNWA is the Pahrnatag National Wildlife Refuge, a 10-mile-long ribbon of green in the desert and an Audubon IBA. Along with 267 other species of birds, the refuge feeds and shelters imperiled yellow-billed cuckoos, bald eagles, and the largest breeding population of endangered southwestern willow flycatchers on the Colorado River watershed. Hiatt and I surprised a covey of Gambel's quail and found barn owl pellets under holes in a sandstone cliff. Killdeers and least sandpipers stalked mudflats. An immature bald eagle (or possibly a golden) hunched on a distant cottonwood. Diving and dabbling ducks sculled along ice sheets, and a flight of tundra swans circled, set their wings, and splashed down.

Two years ago Merry Maxwell left Alaska's Kanuti National Wildlife Refuge to take over as manager here because she "wanted to deal with some of the complex problems faced by refuges in the Lower 48." She found them. For example, the property abounds with springs that almost certainly harbor imperiled or endangered fish and other unique fauna, some perhaps unknown to science. But none has been inventoried, because the refuge lacks funds to hire a biologist. "As a manager I need that data to make good decisions," said Maxwell.

North of the refuge she showed me the valley's two major water sources—Ash Springs, a popular bathing spot and the only home of an endangered subspecies of White River springfish, and Crystal Springs, which sustains another endangered subspecies of White River springfish. The endangered Pahrnatag roundtail chub is already extinct in the wild but clings to existence in a state-owned artificial refuge along Route 93.

Maxwell pointed out illegal water diversions for duck blinds, but there is scant enforcement of water law. "We created our impoundments because we do not have water rights for wildlife," she said. "We have to hold water all year so we can support wetlands to the south. That means we never have enough water to manage for wildlife. So if we lose any, we're really in trouble."

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No worries about refuge wildlife or the endangered desert fish of Ash and Crystal Springs, avers the SNWA, because the Pahranaagat Valley isn't targeted for groundwater pumping. The adjacent Delamar Valley is, however, and its water table is at the same level as Pahranaagat's and very likely connected. Suck the water out from under the springs and creeks in one basin and you're apt to dry up aquatic habitat in others.

On our way back to Las Vegas, Hiatt and I hit rush hour and a setting sun that lit the brown miasma of construction dust and vehicle exhaust in which the city festers. It's some of the filthiest air anywhere.

Local fantasies notwithstanding, there are always limits to growth. I wondered what the limit would be for Las Vegas. So far at least, it has not been air or water pollution. It has not been a scarcity of private land because, with Reid's land bills, Congress has been auctioning off property belonging to all Americans. It has not been water because, until now, the city has been taking all it wants from Lake Mead.

But that doesn't mean that these potential limits won't kick in. Even the groundwater the SNWA calls "unused" cannot sustain current lifestyles very far into the 21st century. And even Reid couldn't talk Congress into hawking a lot of the public land surrounding the city and its valley. There's the BLM's Sloan Canyon National Conservation area to the south, the Fish and Wildlife Service's Desert National Wildlife Refuge complex to the north, the National Park Service's Lake Mead National Recreation Area to the east, and the Forest Service's Spring Mountain National Recreation Area and the BLM's Red Rock Canyon National Conservation Area to the west. The day is not far off when Las Vegas will have no choice but to contain its sprawl and learn to live with the water it has.

Unfortunately for fish and wildlife, what happens in Vegas doesn't always stay in Vegas. But between now and the time Sin City forces religion on itself, it has a gift to offer communities all across America—an example of what not to do.

What You Can Do

Eighty-five percent of Nevada is public land. Let your legislators know how you feel about your fish and wildlife habitat being auctioned off and desiccated to facilitate urban sprawl. Meanwhile, stay informed about the progress of the Las Vegas water grab by logging on to <http://www.greatbasinwater.net> For information on Audubon's IBAs, go to <http://www.audubon.org/bird/iba/index.html>.