

## Waning wildlife

*Green City: Bay Area wildlife is already being negatively affected by a warmer world*

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**GREEN CITY** Changes to ocean and air temperatures, rising sea levels, loss of habitat, scarcity of food, altered precipitation patterns, environmental asynchronicity — these are the concerns of wildlife biologists who are watching the increased effects of climate change on the thousands of plant and animal species that share the earth with people. Overall, global warming threatens a third of existing species, with 50 percent now in general decline due to a variety of human activities.

Bay Area wildlife is already being negatively affected by a warmer world, one that locally manifests in nesting birds roasting to death during heat waves, plummeting fish populations, and starving whales. Those stories were part of "Irreplaceable: Wildlife in a warming world," a recent seminar held at the San Francisco Public Library by the Endangered Species Coalition. Maria Brown, superintendent of Gulf of the Farallones National Marine Sanctuary — one of the most biologically diverse regions in the world, shared a grim account of the Cassin's auklet.

"This little seabird you maybe never heard of may predict the future of climate change in San Francisco," said Brown.

The auklet spends most of its life far out at sea, and flies inland to breed in burrows on remote islands and coastlines. Invasive grasses have choked many of the prime burrowing spots along the coast, so wildlife biologists have installed bird boxes as an alternative. April, the height of the annual nesting season, was an unusually warm month, with thermometers on the Farallones Islands clocking 90-degree temperatures. The bird boxes turned into ovens. "They literally cooked," said Brown of the breeding auklets. "This is a prediction of what's to come."

The auklet's story also shows how species have already been negatively impacted by human activity, even before dramatic climate change was factored into the equation. That's a point all the speakers drove home.

"We're dealing with these threats that already exist. Now with climate change we superimpose all these unknowns," said Tamara Williams, a hydrologist for the Golden Gate National Recreation Area, a 60-mile swath of incredibly diverse land spanning from Tomales Bay to San Mateo that is home to 34 threatened or endangered species — more than any other national park in

continental North America. "Those listed species were listed without considering impacts of climate change. We're dealing with species that were in trouble already."

And how will it affect other species that aren't listed? Williams gave an example of the coast redwood, which relies on a foggy environment to stave off drought during summer months. Will the coast continue to be as foggy as it's been in the past? "We wish we could predict what's going to happen, but we can't," she said.

Mike Lynes of Golden Gate Audubon said the Bay Area has global significance for birds, but there's already been a 90 percent loss of its historic wetlands — one of the primary habitats for shorebirds, which are already in a 50 percent decline. Climate change is only going to make the world harder for them, he said as he flashed maps of altered land masses in the event of a one-meter sea level rise — the modest prediction for what will happen by 2100. The maps showed that such a rise will cause wetlands in Richmond, along the Petaluma River, and in Silicon Valley to disappear. Lynes pointed out that the reconfigured coast doesn't allow room for new wetlands — the coastlines will butt up against already heavily developed urban enclaves for people.

But, he said, expanding and preserving wetlands would benefit birds and humans — wetlands mitigate flooding and are a high-quality CO2 trap.

Zeke Grader, executive director of the Pacific Coast Federation of Fishermen's Associations, didn't sound optimistic about preserving one critical wetland — the Sacramento-San Joaquin delta — when he spoke about the collapsed Pacific salmon population.

"We know pretty much what the problems are for the Central Valley salmon. It doesn't take a blue-ribbon panel like the governor would like to appoint," he said. "We've affected most all of its lifestyle, its lifecycle, by blocking off the places where these salmon spawn," rattling off the names of dams and rivers — Shasta, Bryant, American, Feather — that are no longer easily passable for fish returning to lay eggs where they were born.

On top of that, eggs that are successfully laid hatch into fish that then migrate downstream where they encounter the delta, an "estuary beginning to die." There, agricultural runoff, limited freshwater, and powerful pumps all threaten fish survival.

The few salmon that make it out to sea are faced with altered currents, fewer cool water upwellings, lower quantities of food, and literal dead zones where pollution has obliterated the natural diversity of the water.

"We know what has to be done to fix it. What has been done? Absolutely nothing. Now comes global warming. How well are we going to respond now that we have global warming?" asked Grader. "This year there was no fishing for the first time since 1848," bringing the issue back to the basic human need for food, as well.

He urged people to start demanding more from elected leaders, including a stronger Endangered Species Act with a well-funded mandate, and to begin "raising a much higher bar if we expect to have salmon on the planet, humans on the planet, in the future."

At the start of the evening's presentation, Representative Nancy Pelosi's aide, Melanie Nutter, delivered a short message from the Speaker of the House calling global warming a moral challenge. Nutter didn't stay for the presentation, however, and wasn't there to hear speaker after speaker call out the government for lack of action and, in some cases, inappropriate action.

Tom Dey, a water policy analyst who was seated in the audience, commented that change might come from the top of Barack Obama's administration, but local officials need to be lobbied. "We have Senator [Dianne] Feinstein and Governor [Arnold] Schwarzenegger, who have written off the delta," he said, bringing up their support for a \$9 billion bond to build more dams.

All the speakers urged individual action as well, and Williams said the Interior Department was "committed to doing what we can to reduce our own carbon footprint."

So far, that has been an analysis of carbon emissions throughout the national park system. GGNRA recently approved its climate action plan and is just beginning implementation of three major phases: emissions reduction, education, and adaptation, according to Laura Castellini, an environmental protection specialist. So far, that has meant an energy reduction partnership with Pacific Gas and Electric Co., an integration of climate change into interpretations, and beginning a more focused look at how sea level rise will affect GGNRA lands.

There have been hurdles, too. Castellini said most of the park's emissions actually come from visitors, so the organization is looking at ways to enhance shuttles to and through parks as well as encouraging alternative transportation to arrive there in the first place. When asked how GGNRA was changing its own driving patterns, she said the agency was having problems getting more fuel-efficient cars. "Right now we get all of our vehicles from the General Services Administration. They have been a little slow in getting us vehicles that get us closer to our goal." Specifically, GSA only offers flex-fuel automobiles that run on ethanol, a plant-based fuel that many environmentalists are criticizing as unsustainable. Furthermore, Castellini said there are no ethanol stations in San Francisco.

Even given the concrete actions the park system is taking, there are still a lot of big unanswered questions, said Castellini. What if Glacier National Park no longer has any glaciers? "What does it mean if our protected areas no longer protect what they were established to?" she asked.

The Irreplaceable campaign, which includes a photo exhibit (closing Dec. 31 at the Main Branch of the SFPL), is traveling the country, ending in Washington, DC, as part of a push for Congress to recognize the gravity of the problem. Mark Rockwell, director of the program, closed the seminar by saying, "The only constant in nature is change. Change is what we're going to have to become more comfortable with."

That includes human change.

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