





t's not easy being a bird.

It looks fabulous. You get to soar, to swoop, to glide. Once you're in the air, you're always graceful. (Not so much on the ground, but never mind that. Pay no attention to that.) You're basically unflappable, give or take one or two swooshes of your lovely feathered wings.

But you have to eat, and you have to drink, and you have to rest. Many of you have to migrate. And as you take that long, resource-sapping trip from winter to summer quarters, and then back again, you have to be able to find food, water, and respite.

It's getting harder and harder, as climate change heats, dries, and alters the world, Leon Sokol of Tenafly said.

Israel can help.

Mr. Sokol is the long-time co-chair of what now is called Nature Israel. ("It's easier to say than the American Friends of the Society for the Protection of Nature in Israel, so we changed the name about two years ago," Mr. Sokol said.) As he prepares for upcoming visits from some of the leaders of the Society for the Protection of Nature in Israel – SPNI hasn't changed its main name, he said – he talked about how Israel's situation – not the political situation, for once, but the literal place that it occupies on Planet Earth – allows it to help the birds it hosts.

The SPNI is a smart organization, he said; it combines creativity and analytic thinking to come up with



Storks are among the birds that have returned to the wetlands at Kfar Ruffin.

solutions to problems. He used as an example the way that it helped Israeli farmers deal with rodent infestations.

Yossi Leshem, a prominent Israeli ornithologist, preservationist, and researcher, has worked with SPNI for decades. When he realized that Israeli farmers were suffering from a rodent infestation, and that treating the infestation conventionally, with pesticides, would lead to a host of other problems, he had a brilliant idea. Barn owls. He would bring in barn owls to feast on rats and mice. Gross for us to think about, but yummy for the owls.



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It worked.

And diplomacy can come from that as well.

"After they eliminated the rodent problems and simultaneously eliminated the need to use pesticides, they" – that's the SPNI – "went to farmers in Jordan and to Palestinian farmers, and they agreed to use the barn owls. So for four or five years now, there have been these meetings between Israel, Jordan, and the Palestinian Authority.

"SPNI often takes the lead in developing international relations with its Middle Eastern neighbors around environmental areas of mutual interest," Mr. Sokol said. "Shared environmental interests are a good way to overcome political barriers and get countries to start talking about cooperating with each other."

Great. And yes, barn owls are birds. But what about migration?

Jay Shofet directs the SPNI's partnerships and development department; he's an American-born Israeli who will be in the United States later this month to talk about his work.

First, he talks about Israel's place in the natural world.

"There is amazing biodiversity in Israel, because it is a land bridge between three continents, and also at the intersection of several different climate zones," he said. "There's therefore very high biodiversity – we have Europe's southernmost, Africa's northernmost,



This lucky stork and unfortunate prey are at Kfar Ruffin.

and Asia's westernmost flora and fauna.

"And most importantly for the birds, because we are a land bridge over three continents, and because birds don't like flying over water, Israel is a crucially important stopping point." Birds can rest there before they tackle the Mediterranean, or recover there when they've just crossed back.

Or, as Mr. Sokol put it, "Israel's the main route for birds because they navigate over the Syrlan/African rift, and the Dead Sea is in that rift. It's the lowest point on earth, and a recognizable point for bird navigation.

As birds fly over the Mediterranean or the Black Sea, Israel is a convenient place for them to land before they take off again, and fly over the Sahara to Africa.

"We have a tremendous responsibility for the global bird population," Mr. Shofet said.

Israel used to have a network of wetlands; so did Turkey, Syria, and Lebanon. They were not an unmixed blessing – they were home to mosquitoes that often were infected with malaria, and often made the people who worked near them deathly ill; now there are cures for malaria, but then there were none. (Another name for a wetland is a swamp, which makes it sound far more menacing.)

Lake Hula, in northern Israel, was drained and turned into the Hula Valley, in response to the health threat it posed, in the 1950s. Parts of the valley were reflooded in the 1990s, and now about 500,000,000 birds – that's a five followed by eight

zeros, five hundred million – fly over it.

Meanwhile, the wetlands across the Middle East all have begun to dry up, not only because of the effects of the dams and pumps used to drain them, but also in response to the combined effects of climate change and development.

"The drought caused by climate change has been significantly affecting Africa and the Middle East," Mr. Sokol said. "The desert is increasing in size, and





When wetlands return to their natural state, birds are drawn to them, as here in Kfar Ruffin,



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therefore the birds have a longer distance to travel before they can find places to rest and get to water."

When kibbutzim began large-scale agricultural operations, they turned to their wetlands, among other holdings, and dammed or rerouted the water into huge ponds where they could farm fish. Those were big operations, and for decades they were successful. Meanwhile, the birds that flew over Israel from the 1930s on used to rest at those ponds, just as the generations before them had landed in the wetlands.

More recently, however, the economics of fish farming began to change. Not only is commercial fish farming inherently polluting, it became less profitable as other countries started it doing it far more cheaply. Some fish farms became massive operations whose operators chased away the birds, some were left to dry up, and others were used other ways that didn't attract birds.

"Fish farms are terrible for the environment in general," Mr. Shofet said. "And they've had a particularly terrible effect on the wetlands in Israel. Over the last century, since pre-Zionist days, more than 90 percent of the wetlands in Israel have disappeared.

"The Hula once was a lake, one of the largest in the Middle East," he continued. It was surrounded by wetlands; all of it was drained. "There were similar swamps all over the Middle East, and all over Israel." Most of them were drained, both to eradicate the diseases that were bred there and to make the land more profitable.

What resulted was a case of unanticipated consequences.

"The wetlands were drained and much of it became fish farms, but the truth is that wetlands are so crucially important, not only because they are a freshwater source but also because of its amazing biodiversity.

"So," he repeated, "we have an enormous responsibility for birds across the globe."

"The fish farms have been partial compensation for the lack of wetlands. Sometimes birds would go there, but they are industrial areas. They are not wetlands. They're don't appeal to all birds.

"We know that the bird populations in Europe are declining, and both the number of species and the number of birds within the species have declined over the last decades.

"We hope to change that."

Sometimes problems are so huge that they seem overwhelming and impossible to tackle, but sometimes people can make real change.

"The back story is that a group of donors in Toronto, a family who were supporters of birds and of conservation, met with us in 2018. They buy land and turn it into nature reserves in Ontario. So in 2018, one of them said that he thought that philanthropists would give money to buy land in Israel for a nature reserve there."

That would be the perfect solution to the problem of the unused, unwanted, unlovely former fish farms.

Not only would a nature reserve be a boon to biodiversity, it also is likely to help the local economy, bringing in both domestic and foreign tourists. The Hula Valley has boomed as a tourist destination.

There was a small problem with the potential deal, however, Mr. Shofet said. "The government owns about 87 percent of the land in Israel. It

doesn't sell it; it just leases it. But the point of a nature reserve is that it's forever."

But he also knew that many other SPNI leaders would be as excited about the idea. "I remember going back to the hotel and waiting for it to be morning In Israel, so I could call and talk about the idea. To say that this is a great idea, and that we would love to do it."

Eventually morning came, and he made the call.

In the end, he added, the problem of how long the lease could last did not prove a deal-killer. The lease from the government is in 20- or 25-year increments, but he thinks that it'll be safely leased for at least 49 years. After that, he hopes, the nature reserve will have proven to be so vital to the ecology and the economy of the region that there will be no interest whatsoever in dismantling it.

The donors went ahead with the project.

It was easy to find a kibbutz to work with.

"The kibbutzim are looking for what to do with the failing fish farms," he said. Not all of them were wetlands, but many were. Many of the farms were turned into industrial parks or solar fields. "Those are very important developments, but not on wetlands, Mr. Shofet sald. In fact, solar fields are necessary, he continued. But it's just that "Israel is a very small, very dense country, with very very high biodiversity, so we believe that we should put solar panels on rooftops, not in places that could be habitats."

A nature reserve on a wetland, however, is, well, a



This is an overview of Kfar Ruffin.

natural development. Particularly in Israel.

Kfar Ruppin, a kibbutz in northern Israel, decided to try to convert a fish farm back into a wetland.

Kfar Ruppin is near Beit Shean, on the Jordan River, and "it's a very rural, not very wealthy kibbutz." The farm had been "built on springs," Mr. Shofet said. The water had been pumped out of the surrounding area

in the 1930s; "we unblocked it and it flooded the fish pond."

The system of pumps that had kept the water only in the fish pond was old; "it had broken, and the parts for it didn't exist anymore." Eventually, with some ingenuity, the pumps were reversed.

The wetlands "took three days to flood; three weeks



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Longer repayment terms may have higher rates

later, we'd seen 85 species of birds. It was amazing. And also mammals – we put up night cameras. We haven't seen otters yet – they are critically endangered – but we have seen many other little mammals."

Kibbutz Ma'agan Michael, between Tel Aviv and Haifa, also decided to reflood its wetlands. "Kfar Ruppin is poor and far away, and Ma'agan Michael is in the center of the country and wealthy, but people in both places see a benefit in doing this. It's a great thing to do for the climate in general, and it's also a great way to bring in income.

"They will be great for tourists; they're important birding sites, both for educational birding and for adults.

"Israelis love birding," he added. "It's one of the country's most popular leisure activities."

How about all those birds that have come back?

"We've been asked how the birds know where to go so quickly," Mr. Shofet said. "That's just what birds do. Their migrations are incredible, It's about 7,000 kilometers from Africa to here, and they go to the same tree if it's there.

"Tiny birds the size of hummingbirds do it!" he marveled.

"Israel has signed an international biodiversity pact to maintain an international flyway," Mr. Shofet continued. "It's supercritical, because flying over this part of the world is so hard on the birds. That's why this could be such a game-changer.



This is an overview of the restored wetlands at Maagan Michael

"This is not just an answer to climate change," he concluded. "It's a nature-based solution to climate change – we can mitigate it, to preserve the healthy habitats and plant more foreests. It turns out that healthy habitats – marine and steppes and scrubland, like Israel – are huge carbon storage habitats.

"We've already been approached by companies that

want to fund us as carbon offsets. We have satellite photos, where you can see these wetland habitats absorbing 1,000 tons of carbon a year per dunam" – that's an Israeli unit of area, more or less 1,000 square meters.

"To have that, to be a carbon offset in the middle of a nature reserve, would be a huge statement for helping mitigate climate change."







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