THE FORTNIGHTLY CLUB
OF REDLANDS, CALIFORNIA

Meeting No. 1965

Conservation in the Decisive Decade:
Saving Mother Earth One Piece at a Time

Jim Hendon

A.K. Smiley Public Library, Redlands, California
April 28, 2022

Conservation.

In some ways, this paper has been a long time coming.

As a boy, I bounced around in a WWII Jeep with my grandfather, who didn't allow hunting on his ranch in Imperial Valley.

He believed any jackrabbit that could survive in the desert had a right to be . . . left . . . alone.

And that simple philosophy – respect and empathy -- has stayed with me.

Of course, the irony was lost on both of us at the time . . .

Because in fact, he was taking care of the wildlife by controlling access to his private property.

* * *

So, I set out to write a paper on private land conservancies.

They save paradise by buying it.

I was aware that five years ago, Esri's Jack and Laura Dangermond donated $165 million to the Nature Conservancy to preserve a 38 square-mile ranch on the California coast.

Conservationists will tell you that the best way to save land is to buy it.

But you can do it also with something called a conservation easement, which basically reclassifies land so that it can never be developed.

More than 130,000 are already in place nationwide, overseen mostly by nonprofits known as *land trusts*.

As of last year, America's land trusts had saved some 61 million acres, according to the Land Trust Alliance.

And the 40-year-old organization wants to help its 950 members double that by the end of this decade.

* * *

Acquisitions and easements . . . respectful of property rights . . . saving special places because they're special . . .

Very interesting.

But my leisurely research project soon began to feel more like a high-wire act.

Because the world is now focused on two, giant issues which environmentalists view as "two sides of the same coin."

Climate change and biodiversity.

Today, conservation is smack in the middle . . .

Because it helps to arrest climate change by storing carbon . . .

And it promotes biodiversity by increasing habitat.

This situation has conservationists everywhere thinking big.

Consider the 2030 Island-Ocean Connection Challenge, which plans to protect some 250 threatened species and slow climate change by restoring the ecosystems of 40, globally significant islands.

The partnership includes UC San Diego, and they've already secured $50 million for the project.

* * *

The so-called *Golden Age of Conservation* began when President Theodore Roosevelt established 5 national parks and 18 national monuments.

The idea of conserving land has since steadily gained support.

Now, the apocalyptic urgency of climate change and biodiversity have sparked a global campaign called "30X30," which aims to save 30 percent of the Earth by 2030.

So, conservation may well be entering a *second* Golden Age . . .

A time when we save a lot more land . . . and embrace the world as a single ecosystem.

* * *

Most of us have heard of The Nature Conservancy.

Not long after the Dangermond gift enabled them to save a big chunk of the California coast . . . another donor gave them $50 million to acquire 72,000 acres in the Southern Sierras.

Call it business-as-usual for the 800-pound gorilla of private conservation, which presently owns or protects some 5,000 square miles of habitat.

In 2021 alone, they raised more than $800 million.

"Our natural world is facing the biggest challenges of our lifetime – the climate emergency and biodiversity loss," said CEO Jennifer Morris. "The fate of our natural world hangs in the balance."

Welcome to Global Conservation 101.

The conservancy recently asked members to help save mangrove forests in Kenya, because they store carbon and protect villages from rising sea levels.

We've all heard of thinking *globally* and acting *locally*.

But here, we're being asked to think *globally* . . .

And donate our money *globally* . . .

To help people in Africa help us save the climate in California.

Those of us less globally inclined can donate instead to the Wildlands Conservancy . . . which exposes busloads of city kids to nature at their headquarters property in Oak Glen . . . and owns the popular Whitewater Preserve near Palm Springs.

Founded in 1995, Wildlands has saved more than 2 million acres.

Today it operates California's largest nonprofit system of wildlife preserves.

We can also act individually and plant some Milkweed in our yards for the migrating Monarch butterflies.

Or we can donate to Redlands Conservancy, which recently hosted a volunteer milkweed planting at the Asistencia.

* * *

People have been buying and conserving land since the Victorian Age.

I learned this reading *Conservancy: The Land Trust Movement in America*, by Richard Brewer.

The first conservancy was formed in 1891 by a Harvard-educated botanist named Charles Eliot.

And that organization today oversees 100 natural and historic properties in Massachusetts for the public.

The formula works – as we can see from the overflowing parking lot at the Redlands Conservancy's San Timoteo Nature Sanctuary.

Sometimes, however, land is saved mostly for the wildlife.

For example, the Center for Natural Lands Management, based in Temecula, owns 86 California parcels, and only a handful are open to the public.

Other places are protected to support hunting.

The 15 million acres of wetlands controlled by Ducks Unlimited throughout North America shelter not just ducks but whole ecosystems.

Historically, conservation has also influenced the management of farmland, ranch lands and forests, both public and private, as open space, and because they attract and foster wildlife.

For example, the Virginia-based Conservation Fund last year sealed a deal with 10 partners to protect 13,000 acres on Florida's coastline.

A timber company will sustainably harvest half of the preserve, leaving the rest for wildlife.

Conservation through collaboration.

The Center for Biological Diversity takes a more confrontational approach.

Their legal actions helped to snuff out the 3,600-unit, Harmony housing project . . . which would have brought 10,000 new people to the Highland area . . .

And they helped to block the Marina Point condo project at Big Bear Lake, partly for being too close to a Bald Eagle nesting site.

* * *

Today's conservation is also addressing a comparatively new priority: Environmental justice.

California's $750 million *Outdoors for All* initiative, for example, will fund new parks and open space for communities suffering from inequitable access to nature.

An even larger, related trend is environmental justice for indigenous peoples.

"The Congo's peatlands are helping the planet," said a special report in the New York Times on protecting peat bogs as vital carbon sinks.

"What is the world doing for the Congo?"

Geographic studies suggest that lands managed or settled by indigenous communities support up to 80 percent of the world's remaining biodiversity.

Of course, many native cultures are still powerless.

The victims of colonial history.

But now, more of them have a seat at the conservation table.

In some places, notably Canada, they own the table.

And the trend is for them to own more.

Several years ago, the Australian government spent $180 million to buy 200,000 acres of farmland for conversion back into wetlands.

To manage and restore the property, the Nature Conservancy teamed up with local tribes, who were given full ownership pf the area in 2019.

In the U.S., some tribes are buying back their ancestral lands.

The Yurok of Northern California, for example, have acquired more than 80,000 acres to expand their holdings along the Klamath River.

* * *

Recently, I watched a PBS documentary called *The Age of Nature.*

I learned that the mountains in the small nation of Bhutan are part of the melting Himalayan Ice Cap.

And that giant lakes of meltwater might someday wash down upon tens of millions of poor people.

But . . . if we can help Bhutan preserve its forests . . . to store carbon . . . to prevent global warming . . . to save the ice caps . . . and shrink the lakes . . .

Then we'll also shelter wildlife . . . protect lowland populations . . . and maybe save ourselves as well.

In short, we should all be investing in something called *ecosystem services.*

Also known as *natural capital*, these are all the free, indispensable things nature provides to us that we take for granted.

For example, we pay nothing for the oxygen that plants diligently manufacture for us . . .

Or for taking care of the ocean which provides our swordfish dinners.

Next came a segment about how "seagrass meadows" in Australia store more carbon than forests.

This is called *blue carbon.*

It seems that too many sea turtles are eating the seagrass because we've been overfishing the sharks.

So . . . for a start . . . we need to put some sharks back.

Conserving seagrass meadows will also buffer coastal populations from rising sea levels.

And this is an example of *green infrastructure* . . . which supports biodiversity . . . while mitigating the unpreventable effects of climate change.

OK . . . are you with me here?

We need to save the sharks . . . so that the sharks can save us.

* * *

I used to think of the "age of nature" as that distant time before human parasites came along and ruined everything.

It's easy to think this way.

The World Wildlife Fund has estimated that the total population of wild animals has declined by 68 percent in the last 50 years . . .

And at least 2,000 species are going extinct every year.

But the *Age of Nature* documentary envisions a new era when precious flora and fauna can be protected at last . . .

Because we're going to harness science and technology to environmental morality.

"Earth will take care of us," the Redlands Conservancy said in an Earth Day message to members.

"But the gesture must be reciprocated."

It's the ultimate Green New Deal – but we can't get there without something else.

The Decisive Decade.

* * *

Green-minded leaders everywhere are calling for a commitment to this vision.

According to a report from Oxford University, we need an "exponential increase in engagement and collaboration from businesses, civil society organizations, governments and individual citizens around the globe."

Climate change is the big reason.

But the CEO of the Bezos Earth Fund says this also means a decisive decade for conservation . . .

Because stopping global warming requires protecting "the lands and waters that serve as our life support system."

The centerpiece is "30X30," as I mentioned earlier, saving 30 percent of Earth by 2030.

Last year, President Biden signed an executive order for 30X30 and called for "putting a new generation of Americans to work conserving our public lands and waters."

In 2016, the late Harvard biologist and author E.O. Wilson called for saving not 30 percent . . . but 50 percent . . . to rescue 80 percent of species from extinction.

The World Database on Protected Areas has estimated that only about 15 percent of Earth is already protected.

So, the United Nations Convention on Biological Diversity is now on board with the 30X30.

In the U.S., we've already protected about 12 percent.

So, we need to save an additional area twice the size of Texas.

According to the Natural Resources Defense Council, "Anything less will not meet the scale of the crisis at hand."

Several governors, including ours, have endorsed 30X30, despite some confusion about what we mean by "protected."

In California, for example, half the state is federal land, including a lot of wilderness, parkland and national forest.

A dozen other governors are opposing Biden's executive order.

But it's pretty clear they'll be swimming upstream against the force of 30X30.

* * *

In 2010, some 200 nations participating in the U.N. Convention on Biological Diversity signed a Global Biodiversity Framework, with 21 targets and 10 milestones proposed for 2030.

The ultimate objective is to be living in harmony with nature by 2050.

For example, one of the 21 targets calls for, and I quote:

"Redirecting, repurposing, reforming or eliminating incentives harmful for biodiversity, in a just and equitable way, reducing them by at least $500 billion per year."

I'm sorry.

Ron Burgess and I tend to view proclamations like these as more than a little outrageous.

But look closer and you'll learn that they're talking about ending government subsidies for harmful forms of agriculture.

Good idea.

Let's take another look.

Milestone A.2 says, by 2030: "The increase in the extinction rate is halted or reversed."

Sounds wildly ambitious, but notice, it's not extinctions, but the rising rate, that this milestone aims to tackle in the near term.

And I'm certainly on board with that.

When the huge fires Down Under started burning up the Koala Bears, I sent a donation to the rescue organizations in Australia.

I had never done such a thing before.

I should probably do more.

The other Biodiversity targets and milestones are equally aspirational and aligned with the UN's Sustainable Development Goals and climate-change initiative.

It looks like an emerging global consensus . . . except the United States has never signed on to the Convention on Biological Diversity.

That would require a binding treaty . . . which needs a 2/3 approval by the Senate . . . not likely . . . because conservative senators see this as a threat to national sovereignty.

* * *

So are we really looking at a new Golden Age?

Consider the growing emphasis on *large landscape conservation*.

Wildlife biologists don't see borders – indeed, we don't want them to.

The North American Congress for Conservation Biology, for example, views the entire Rocky Mountain range, from Mexico to Canada, as a single ecosystem.

And it has identified 21 other big areas requiring a lot of help to restore "ecological connectivity."

According to the recent book, *World on a Wing*, a shorebird called a Bar-Tailed Godwit makes an 18,000 mile migratory loop touching four continents, every year of its life.

In our quest to save the Earth, these ultimate world citizens connect the dots for us.

It's how we know that saving a spot for migrating warblers in Maine requires also saving a spot for them in Costa Rica.

And it's the same for millions of birds in Europe, Africa, Asia.

* * *

It turns out that preserving isolated parcels of habitat hasn't worked so good.

The federal Endangered Species Act has indirectly protected a lot of places.

But what's really needed are *corridors*, according to the Center for Large Landscape Conservation.

The pieces of a conservation puzzle should touch, or be linked.

Along the Riverside Freeway, an off ramp and underpass have been converted into a wildlife passageway linking the Chino Hills to the Cleveland National Forest.

In Australia, there's a highway crossing for migrating crabs.

And in west L.A., an enormous new bridge over the 101 will soon enable mountain lions and other wildlife to safely move between two mountain ranges.

It's expected to cost almost $90 million.

* * *

Wandering through the wilderness of conservation web sites can be dangerously distracting.

But it's also necessary – because with this topic, you don't know what you don't know.

For example, back in 2014, the International Union for the Conservation of Nature produced a major report titled *The Futures of Privately Protected Areas*.

The report includes profiles of private conservation in 17 different countries . . . where "tens of thousands" of parcels are not well understood, or property cataloged . . .

The "missing pieces of the global conservation puzzle."

We need to get a handle on this, the report says, because private conservation is essential to 30X30.

We know this partly because individuals – mainly, rich people – have been saving special places for quite a long time.

Doug Thompkins made a fortune selling outdoor clothing . . .

And then acquired some 2 million acres in Chile and Argentina, now protected as national parklands.

Ted Turner saved 2 million acres by acquiring large American ranches.

Today, 50,000 bison roam his properties.

Silicon Valley entrepreneur Sean Garrity has been buying up land in Montana to build his American Prairie Reserve into the largest wildlife sanctuary in the Lower 48.

And last year, nine organizations – led by the Bezos Earth Fund -- launched the Protecting Our Planet Challenge, pledging $5 billion over the next 10 years to support 30X30.

And let's not forget the corporate citizenship money.

Walmart since 2005 has invested $70 million to protect some 1.8 million acres by conserving an acre of wildlife habitat for every acre of land developed.

And UPS has planted 17 million trees in 66 countries working with The Nature Conservancy and other partners.

* * *

Planting, preserving and restoring forests has for years been a popular remedy for global warming.

Add major financial incentives and you get conservation on steroids.

Consider R-E-D-D-Plus -- that stands for Reducing Emissions from Deforestation and Degradation.

It's a way to incentivize individual countries to preserve mature forests.

This could prevent 10 percent of world emissions, according to the Wildlife Conservation Society in New York.

In March, the society and a partner named Everland announced plans for up to 15 REDD-Plus projects.

Over the next decade, they plan to log at least 10 million tons per year of *verified emission reductions* – or VERs – with an estimated value of $2 billion.

The money will come from the global carbon market, where VERs are packaged and sold to polluters, often by brokers such as Everland.

The carbon market, in short, is enabling countries to put a high value on leaving their trees alone, instead of harvesting them.

For example, Everland reports that the issuance of 17 million VERs has protected more than 120,000 acres of forest in Cambodia.

The carbon market is also the instrument-of-choice for Switzerland's pledge to cut its greenhouse gas emissions in half by 2030.

This includes a plan for the Swiss to provide $22 million worth of energy-efficient stoves to Peru . . .

So that the Peruvians won't need to cut down their forests for firewood.

* * *

OK – once I discovered all this money flowing into conservation, it seemed fair to ask:

What's everyone worried about?

Here, I'd like to share an inconvenient truth.

There will never be enough private money to save Mother Earth.

Some believe so-called "green bonds," or "climate bonds," will provide a lot of new money for protecting land -- and some $220 billion of these bonds were issued in 2020 alone.

But so far, this has mostly been invested in large, energy efficiency projects.

Conservationists, it seems, haven't yet figured out how to make the saving of land generate a competitive rate of return.

Last year, a major report from the Nature Conservancy and several partners . . . called *Financing Nature* . . . said that biodiversity faces a funding shortage of more than $600 billion per year.

To conservationists, this was old news, but still alarming.

Because 10 years ago, the World Wildlife Fund and others calculated the annual gap at about $250 billion.

* * *

So, who's going to bridge the gap?

You guessed it:

That Mother of all Sugar Daddies, government.

After all, what they can't buy, governments can conserve by decree.

Here in the U.S., the Antiquities Act of 1906 gives Presidents the right to establish national monuments on federal lands, such as the Bears Ears National Monument.

The Wilderness Society believes the act will be:

"An incredibly important tool for meeting the conservation goals of the 30×30 effort, both for biodiversity and wildlife habitat . . ."

But -- presidential decrees aside -- the federal government has been spending money on conservation for a long time.

The Land and Water Conservation Fund, for example, was established 60 years ago to save public lands and support conservation on private lands.

Not long ago, Congress permanently set the fund's budget at $900 million per year.

Now, I need to confess here, I will not be able to provide a comprehensive accounting of federal conservation funds.

Every time I Googled, I got boggled.

Last year, for example, fees collected on record sales of guns and ammo raised more than $1 billion for the Wildlife and Sport Fishing Restoration Program, which dates to 1937.

Meanwhile, the U.S. Department of Agriculture's Conservation Reserve Program has been paying farmers to convert croplands back into wild lands – and they plan to pay more.

Separately, funding for the federal Agricultural Conservation Easement Program is now up to $450 million per year.

The new $1.3 trillion, federal infrastructure bill includes $200 billion for environmental projects, according to The Nature Conservancy.

So even considering the legacy of federal investment, the stage is set for a new Golden Age of Conservation at the highest level of government.

* * *

I won't try to summarize what other countries are doing.

As for California, Frazier Haney, the executive director of the Wildlands Conservancy, believes that a big surge in state money for conservation is creating "a once in a generation opportunity" to save land.

Organizations like Wildlands are some of California's most valuable partners.

They're experts in identifying and ranking worthy places to protect or restore . . .

And then building the coalitions and funding strategies to save, restore and manage them.

Frazier confessed that he can't speak hopefully about the global environmental crisis.

But he also said this is no time to "go eat ice cream and watch the world end."

So at Wildlands, he says, "What we're really up to is using our hearts and minds to take the best action we can . . . and go as hard as we can."

* * *

It's good to see this important organization is thriving, with 600 volunteers and a staff which has doubled to about 70 in the last 10 years.

And this is a good place to acknowledge Dr. Tim Krantz, who spent a bit of time enlightening me for this paper.

Tim is perhaps best known locally as the chair of the Environmental Studies Program at the U of R.

In June, he'll start a new job as The Director of Conservation at Wildlands to help the conservancy fulfill the promise of 30X30.

Tim says about 22 percent of California is considered conserved.

So we need to save another 13,000 square miles.

That's more than 10 times the area of Yosemite National Park.

So Wildlands will be collaborating on multiple opportunities with the State Lands Commission and state natural resources agencies.

The conservancy certainly seems up to the challenge.

One recent project-in-progress is protecting a 25-mile-long canyon and estuary on the Eel River in northern California.

It's evolving into a textbook example of large landscape conservation, with government, private, public and Native American partners.

30X30 could also re-ignite interest in protecting the entire Owens Valley with a 400 square-mile conservation easement.

And a Wildlands project at Bears Ears National Monument in Utah aims to conserve a tract which can become a catalyst for improved public access to vast areas of interconnected public lands.

Tim says he's looking forward to deploying a concept called "climate preserves."

He sees a "new consciousness" emerging with the game-changing trend to tackle both climate change and biodiversity through conservation.

Add more money – plus the timely political promise of more public access to nature -- and the stage is set for a surge in landscape-scale preservation.

Tim still finds the global environmental picture to be downright depressing sometimes.

But he's also excited about an idea . . . to recruit local kids . . . to sequester carbon . . . by planting seedlings from Oak Glen . . . in our local canyons . . . to restore the oak woodlands out there.

Thinking globally, acting locally.

He told me what he used to tell his worried students:

"All is not lost."

* * *

Certainly, Tim has plenty of compatriots in California.

The UC system, for example, has built a network of 40 nature preserves -- a "living laboratory," for conservation.

Beyond that, in just the last 20 years, voters approved more than $7 billion in general obligation bonds for the environment.

The whopper was $5.4 billion Proposition 84, The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006.

Three other propositions directed over $1.4 billion to the state's Wildlife Conservation Board, established in 1947.

Last year alone, the board invested $163 million in 160 projects, mostly for California's 10 conservancies – not private organizations, but powerful state agencies.

The Tahoe Conservancy, for example, has invested almost half a billion in public funds since being founded in 1985.

* * *

Following his endorsement of 30X30, Governor Newsom initiated Pathways to 30x30: Accelerating Conservation of California's Nature.

Pathways will be integrated with the state's Natural and Working Lands Climate Smart Strategy and other undertakings, such as the California Biodiversity Initiative . . .

Which is supported by the California Biodiversity Collaborative.

Which is working on the California Biodiversity Roadmap.

And according to the California Biodiversity Action Plan, "Efforts must increase in size and accelerate in pace."

Last September, the governor signed a $15 billion collection of 25 bills generally referred to as the "climate package."

Several major hunks have high potential to fund conservation.

For example, $1.5 billion for wildfire recovery and forest resilience;

$5.2 billion for water and drought resilience, which can include habitat restoration;

And $3.7 billion for climate resilience – things like protecting more coastline from rising sea levels.

To put this in perspective, the Legislative Analyst reports that spending on natural resources and the environment will be more than $21 billion in the current fiscal year, up about 20 percent from the prior period.

Meanwhile, the November ballot will likely include a proposition called the Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, and Workforce Development Bond Act of 2022.

It would authorize issuing bonds to raise a fresh $7.4 billion . . .

Which by my reading, will mostly fund conservation, either directly or indirectly.

* * *

Writing this paper, I realized early that I could run out my clock trying to cover the big picture.

So I spent some time with the Redlands Conservancy's president, Robert Dawes, and Sherli Leonard, its executive director.

And I was reminded that no matter how global it gets, conservation will always be local at heart.

Sherli's a big advocate for appreciating the economic case for land conservation.

True, it blocks development, but it increases the value of what's already developed nearby.

Namely, your house, and mine.

Our whole town.

It's consistent with another Redlands Conservancy priority: Opening conserved areas to the public.

This is essential to earn public support, Robert told me.

And in this way, conservancies continuously build a political constituency for nature.

* * *

There's much more to our local story than I can cover today.

But having the Wildlands Conservancy headquartered in our area has certainly earned us a place on America's conservation map.

And so have a number of other achievements.

35 years ago, voter approval of city Measure O provided more than $7 million for open space, and although that money was exhausted long ago, the local conservation spirit endures.

More recently . . . the San Bernardino Valley Water District bought the land which would have become the Harmony housing project in Highland.

The district's plan for the 1,600-acre property will likely emphasize habitat preservation, water supply management and other conservation benefits.

We also have The Emerald Necklace, championed by the Redlands Conservancy.

The idea of encircling Redlands with open space dates to 1987, and some Measure O funds were used in pursuit of that goal.

The conservancy is perhaps better known for adapting historic properties for community enjoyment.

But The Necklace, for me, has a certain purity as a conservation vision.

Partners have included the Inland Empire Resource Conservation District, which oversees the preservation of worthy areas using "mitigation" fees from developers.

Indeed, some of the funds to acquire the conservancy's Judson and Brown Preserve, out by the airport, came from LA's Metropolitan Water District . . .

Because their Inland Feeder Project damaged the remaining habitat of the endangered San Bernardino Kangaroo Rat.

The biggest jewel in the Necklace is the 3,400-acre Crafton Hills Preserve bordering Yucaipa.

It was established in the 1990s through the efforts of government, landowners, developers and citizens . . . including Jack Dangermond.

And if not for these folks, Crafton Hills would probably look like the overdeveloped slopes flanking the 91 Freeway in Orange County.

* * *

Most recently, we've learned that Pete Dangermond, Jack's brother, has launched the Two Canyons Conservancy.

Pete's been a prominent figure in both conserving California and preserving Redlands.

So talking with him helped me appreciate that despite all the latest global trends, it's the local conservationists who do the hard work to enhance life for us all.

As for 30X30, Pete said that pinpointing the most valuable wildlife areas to save -- and connecting them for maximum biodiversity benefits – should be a higher priority than the sheer accumulation of acreage.

He's already living this vision, because he and some partners in his consulting firm pioneered an approach called Multispecies Habitat Conservation Planning in Orange, Riverside and San Diego Counties.

And the concept has caught on . . .

San Bernardino County's plan-in-progress, for example, would encompass 500 square miles, 6 unique habitats, 19 state and federal endangered species and over 53 species of special concern.

Now Pete wants to conserve or restore land and historic features throughout Live Oak and San Timoteo Canyons, such as Casco Lakes.

It's a vision for outdoor recreation, education, adaptive re-use, Earth-friendly farming and more.

And Two Canyons is coordinating closely with the Redlands Conservancy, whose popular canyon properties and Gateway Ranch are already proving the potential of our city's outback.

* * *

Pete is also excited about the growing contributions of his brother's company.

Some 11,000 nonprofits and others involved in conservation today rely on Esri's GIS products.

If I might paraphrase how Pete described it:

Esri's technology empowers conservationists with the data and details necessary to "justify doing the right thing" for the environment.

The Nature Conservancy, for example, has launched The Resilient and Connected Network.

Among other benefits, the network maps which areas will best support wildlife migration as the climate changes.

In a similar project, the state Natural Resources Agency and Esri are finalizing the California Nature Geographic Information System.

I use the term "mapping" here, but we're really talking about sophisticated systems for the collection, analysis, display, management and sharing of Earth data . . .

Including natural and cultural features, towns and cities – even demographic and financial factors.

These systems incorporate three-dimensional and four-dimensional imaging . . .

They blend internet connectivity . . . processing power . . . software . . . mobile communication . . . satellite imagery . . . remote sensors . . . and much more into something called *the geospatial infrastructure.*

According to one expert, this is enabling conservationists to "build digital replicas" of the environment to simulate nature, predict the future, plan improvements or fix problems.

At one national park in Africa, for example, satellite images integrated with sensors attached to elephants are revealing trails and waterways used by illegal hunters.

And this has virtually eliminated poaching there.

But that's just a small example of this technology's power.

One major report in 2020 report employed something called *advanced geospatial analytics* to forecast that doubling conservation on land and in the oceans could create up to 650,000 jobs in conservation management by 2030.

It went on to say that "natural capital could also support local economic growth, generating or safeguarding on the order of $300 billion to $500 billion in gross domestic product, and 30 million jobs in ecotourism and sustainable fishing alone."

We might be tempted to call this pie-in-the-sky . . . except that it came from the global consulting giant, McKinsey and Company.

In the field of ornithology, miniaturization and other advances in electronics . . . integrated with mapping . . . are enabling what one Cornell University ornithologist calls "a golden age of observation."

The Audubon Society has estimated that three billion birds have disappeared from North America alone in the past 50 years.

Birds evolved in a world that humans have severely compromised.

Geospatial systems can help us re-create a world that works for them.

One scientist calls this the "artificial restoration of complexity."

It's happening now in The Great Thicket . . .

More than 100,000 acres of habitat being pieced together by six New England states and the U.S. Fish and Wildlife Service . . .

Using maps from Esri . . .

Where the passion for conservation comes from the very top.

"Humans are living recklessly and unsustainably," Jack Dangermond told the Esri customer forum last fall.

"We as humans and as GIS users are collectively responsible for our future."

"I'm going all in," he said. "Act with urgency."

* * *

Last year, Fortnightly brother Peter Coonradt wrote a letter to the Redlands Community News . . . arguing that we probably can't save the Earth.

Overpopulation will do us in, he said.

But I don't think Peter is really wired for gloom and doom.

He sees himself as a realist, not a pessimist.

He said in his letter that we should enjoy nature and live in the moment while we can . . .

And for him, this includes supporting conservation . . . because when he's not making grim forecasts, Peter is volunteering his video skills for the Two Canyons Conservancy.

Brother Dick Corneille countered Peter's letter with one of his own, saying that we're making progress on overpopulation by educating more girls and women about family planning.

As an engineer, Dick understands the grim forecasts, but as a grandfather, he is compelled to action.

Which is one reason why he's helping Redlanders learn how to take action against climate change.

* * *

Me? I respect both the realist and the optimist.

But I'm also something of a conservation curmudgeon.

I see what needs to be done . . .

But I long for a time when wild really meant wild.

When the natural world was full of mystery . . .

Which gave us a sense of wonder.

Monitored wild . . . mapped wild . . . rearranged wild.

To me this "managed wildness" sometimes smacks of the arrogance we find in the book of Genesis . . .

Where God said man should "have dominion over the fish of the sea and the birds of the heavens and over all the earth . . . and over every creeping thing that creeps on the earth."

So how has that worked out for us so far?

It seems to me . . . we deserve a reckoning . . . like the one predicted in my favorite green anthem, *After the Deluge* . . .

Where Jackson Browne sings of "the magnitude of Earth's fury in the final hour" . . .

And warns us that "in the naked dawn, only a few survive."

Managed ducks . . . Managed trees . . . Managed fish . . . Managed cougars . . . Managed Monarchs.

There's an intrusiveness about this dominion.

It disturbs my soul.

The end of mystery . . . the antithesis of wonder.

* * *

Ten years ago, E. O. Wilson – the scientist who argued for saving half the Earth -- said in an interview:

"I'm optimistic. I think we can pass from conquerors to stewards."

Most of us won't be around to find out.

But in the meantime . . . we can take heart that fortunately . . . our old friend . . . conservation . . . is alive and well.

The actor Steve McQueen once said: “I’d rather wake up in the middle of nowhere than in any city on Earth.”

I saw the middle of nowhere for myself, 60 years ago, from behind the wheel of my grandfather’s Jeep.

And when a jackrabbit darted across our path, it was enough to just leave it alone.

But even then . . . that was a fantasy.

Because about the only thing we haven’t done to the Earth is leave it alone.

And now . . . we can’t afford to.

Thank you.

# # #

Summary

People have been buying and conserving land for its scenic values, beauty and wildlife since the Victorian Age. But the environmental priorities of the 21st Century have brought a new urgency to the complex task of saving wild places. As droughts persist, Earth's temperatures rise and species disappear at an alarming rate, leaders have called for a "decisive decade" of new environmental commitments and actions. Conservation today is fast being integrated into a vast, global ecosystem of green initiatives and institutions seeking to arrest climate change, promote social justice and preserve biodiversity by sheltering up to 30 percent of the Earth's land surface. At the local level, nonprofit conservancies are stepping up their traditional efforts to enhance quality of life in Redlands, the Inland Empire and beyond. Our top local employer esri is providing essential, mapping technologies to make land trusts and conservationists more effective worldwide. And esri's conservationist leaders, Jack and Laura Dangermond, are playing a starring role in saving the California coast. With a growing and more urbanized population, conserving open space has never been more critical. Not just for recreation and wildlife, but to teach people appreciation and respect for humanity's reliance on Earth and the web of life.

Author Background

Redlands native Jim Hendon is a former newspaper reporter and editor who covered energy, business, technology and other topics during a 10-year career, including four years at the Rocky Mountain News in Denver. He later worked 15 years in corporate communications for Chevron Corporation and served as the company's head speechwriter. From 2004 to 2014, he worked as an independent business writer and speechwriter, primarily for Chevron. An amateur photographer, he served four years as vice president, Programs, for the Redlands Camera Club. Son of former Fortnightly member Larry Hendon, he holds a degree in journalism from San Diego State University (1974).

Acknowledgements

The author is grateful to many individuals who provided information and advice for this paper. Special thanks go to Bruce Rowland; Sherli Leonard and Robert Dawes, Redlands Conservancy; Pete Dangermond; Dr. Tim Krantz; and Frazier Haney, Wildlands Conservancy.

Several books were especially helpful, including Conservancy: The Land Trust Movement in America, by Richard Brewer; A World on the Wing, by Scott Weidensaul; Eco Barons by Howard Humes; Protecting the Places We Love, by Breece Robertson (Esri Press); Wildlands Conservancy: Behold the Beauty, by David Myers; and A Sand County Almanac, by Aldo Leopold.

The author is also grateful for information obtained from by numerous conservation nonprofits; state and federal government; the United Nations; The Nature Conservancy and the study Financing Nature: Closing the Global Biodiversity Funding Gap; the International Union for the Conservation of Nature and the study The Futures of Privately Protected Areas; the Wildlife Conservation Society; The Land Trust Alliance; The Redlands Conservancy; The Wildlands Conservancy; and the PBS nature documentary series, The Age of Nature.