



DEDICATED TO THE WORLD'S CUSTODIANS OF WILD SPACES & WILDLIFE

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Let's Forge Conservation Coalitions

Editorial by Gerhard R. Damm

READ TIME 4 ½ MINS

Antagonism between hunters and those who don't like hunting is probably the single biggest reason why a powerful natural alliance to conserve and enhance wildlife and wildlife habitat is elusive to this day—although it could literally move mountains and overcome most obstacles facing ecosystem conservation.

There are quite a few organizations and individuals devoted to making sure there is no cooperation between the two camps. Loud minorities on each side foster the impression of being the relevant majority. It's a heady mix of personal egos, organizational survival, and economics (access to donor money, commercial exploitation of wildlife and wild lands). This antagonism has become an emotionally charged culture war. Science, logic, the well-being of

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wildlife, traditional knowledge, and the legitimate interests of Indigenous communities are relocated to the rear of the bus.

Both sides of the debate display distinct confirmation bias; both select information that supports their views, ignore contrary information, and interpret ambiguous evidence as confirming own beliefs, attitudes and values. You can prove anything right if you don't look hard enough!

"Bonkers" is the word that springs to mind to describe some of the prevalent views: On the one side are the "ban-all-hunting" fanatics (Eduardo Goncalves' paranoid crusade in the UK is a case in point). The other extreme are irresponsible "pro-hunting" zealots (like South Africa's canned lion breeders and shooters). Backed by hysteria, intolerance, and malice, the opposition is mercilessly peppered with derogatory stereotypes. Decoupled from reality, both sides rely on stoking emotional wildfires. Conservation outcomes be damned, as long as the other side is damaged and denigrated (and funding for the own organizational machinery keeps rolling in).

The "ban-all-hunting" faction concludes that extinction follows from hunting (falsely reenforced by deliberately and continuously conflating regulated sustainable hunting with market and/or feudal hunting of past centuries, with organized crime driven poaching, and illegal wildlife trade).

The "pro-hunting" zealots' suggestion that hunting is conservation's panacea gives the impression that the survival of certain species depends on hunting alone. Hiding behind diffusely framed conservation claims is the excuse of choice for apologists (or profiteers) of practices like canned lion executions, put & take shooting operations, line breeding formerly wild animals for ever larger horns or color morphs, mass shootings of artificially pen-raised game birds, unnatural predator exclusion or their outright persecution, and more down that line.

In the wake of the pandemic-induced conservation-funding crisis we need pragmatic solutions, not dogmatism. We need to uproot deeply held beliefs that hunting and ecotourism are incompatible and mutually exclusive. Only card-carrying members of the *Flat-Earth Society* will insist that there are unbridgeable divides.

The culture war between those who support hunting and those who adamantly oppose it must end—it's bad for business, it's bad for conservation, and it's bad for the people who live with wildlife. Polarized and emotion-driven mud-slinging must be replaced with nuanced discussions about viable short- and long-term conservation options.

Fortunately, there's light on the horizon.

More than 50 countries are pushing for a global 30×30 goal to be adopted at the 15th Conference of the Parties to the Convention on Biological Diversity in China this October. The Biden administration's vision to conserving 30 percent of America's lands and waters by 2030 has been welcomed by hunting as well as non-hunting conservation groups.

Here are great opportunities for constructive dialogue—in North America, in Europe, and importantly, in the countries representing the Global South.

In British Colombia, unlikely bedfellows are already exploring shared values. Guide-outfitters, hunters, fishers and trappers are [standing shoulder-to-shoulder](#) with naturalists, ecotourism operators and conservation organizations in the [Fish, Wildlife and Habitat Coalition](#). Bridging [perceived] divides during a series of roundtable discussions, 25 organizations jointly advocated for positive change.

Scott Ellis, executive director of the Guide-Outfitters Association of B.C. said of the meetings “I didn't see a bunch of pottery-making, marijuana-growing, tie-dye-wearing, dreadlocked freaks, and hopefully they didn't see a bunch of trophy-hunting, beer-drinking knuckle draggers. We align on almost every concern about our water, our forest, our harvest rates, about climate change concerns, our fish populations and our wildlife populations.”

There are many other similar examples from Southern Africa, Central Asia, Europe, and North America where individual hunters and hunting organizations engage with conservation NGOs, Indigenous peoples and local communities, and the scientific community. And, to make matter really interesting, a recently [published study](#) by a Texas A&M AgriLife researcher showed that animal activists and hunters share similar psychological mechanisms driving individual moral motivations for nature conservancy.

This gives reason for optimism. There's a lot more common ground than we give credit for.

At the end of the day, both hunting and non-hunting conservationists care about biodiversity. Leveraging common interest creates genuine relationships, assists to persuasively engage elected legislators, promotes accountability, and develops regionally diverse big-picture visions for decisive conservation action.

Factual information exchange and reasoned debate add up to a big difference, and can bring profound changes on how wild lands and wildlife are conserved, managed, and legally used.

That's why we created our newsroom in 2019. To champion the sharpest thinkers and the most effective doers in the conservation world—whether they hunt, or have reservations about hunting. To bridge divides and help establishing coalitions. To call for a more inclusive world—with rural communities who live with wildlife, having their rightful place at the table. And to share smart ways to be better conservationists, every day, wherever we are.

A natural alliance of hunting and non-hunting conservationists can indeed move mountains, overcome obstacles and provide better conservation outcomes. So, let's continue setting the stage. And while we're at it, let's facilitate forward-leading action to promote incentive-driven conservation.

Gerhard Damm is the Editor-in-Chief of Conservation Frontlines.

Banner image: A lone caribou in Tahltan territory in northwest B.C., Jeremy Koreski/The Narwhal photo.



Suing to protect valuable wildlife

By Jacob Phelps

READ TIME: 6 MINUTES

Wildlife is valuable. When harmed, such as by commercial poaching or illegal trade, our response should be not only to punish offenders, but to seek remedies. Conservation litigation provides opportunities to secure justice for wildlife.

We work hard to protect things of value and—when someone harms them—we frequently respond strongly. These responses often seek to punish those who injure us, but also often seek remedies such as compensation for our losses. This is the premise of a liability lawsuit.

In most countries, liability lawsuits can provide parties with remedies to harm suffered from actions such as injury to livelihoods and property, medical malpractice, negligence, breach of contract, fraud and defamation. In these cases, the plaintiff that suffers harm as a result of the other's actions or inaction, can seek remedies via a liability suit, classically under civil or administrative law (depending on country). Remedies typically involve financial compensation.

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However, when it comes to acts that harm the environment, including valuable wildlife resources, we rarely seek comparable legal remedies.

Why don't we sue those who illegally harvest, trade and use wildlife?

Harm to wildlife is typically addressed through criminal law: violators might be punished with fines and imprisonment, but we rarely employ the concept of legal liability to seek remedies. Yet, there are many cases of large-scale, commercial illegal take, trade and use that harm threatened wildlife to which liability is immediately relevant.

Poaching, illegal trade and use of wildlife can have huge negative impacts. For example, it can harm private resources, where wildlife and habitats are owned and managed by communities or private landholders. This is particularly salient in contexts such as big game management for ecotourism and hunting, where illegal wildlife take or trade delivers direct impacts on livelihoods and assets that could be compensated.

Importantly, environmental liability suits are not limited to private losses or to compensation for financial losses. Liability suits in many countries can also be used to seek diverse remedies for harm to public resources, such as biodiversity that is owned and managed by the State in the public interest. For example, commercial poaching within a national park harms not only the affected individual animals, but also the survival of the species, the ecosystems, and the general public who values the park. These types of injuries can and should be remedied by those responsible for causing the harm.

Moreover, actions that harm wildlife also impact the many intangible values humans place on biodiversity, associated with cultural, intrinsic, existence and bequest values. These values are part of the reason that governments, philanthropies, citizens, communities and NGOs invest so heavily into strengthening enforcement to reduce illegal trade and poaching.

It is time to consider whether, when these valuable private and public resources are harmed, we should also be making efforts to seek remedies for that harm to biodiversity. Indeed, in cases of egregious harm to wildlife by offenders who are well-resourced and likely to sustain future harm to biodiversity (e.g., organized crime, corporations, financiers), liability lawsuits are entirely warranted.

Conservation litigation is possible in many countries

The legal authority for environmental liability lawsuits exists in many countries. China, Mexico, Indonesia, DR Congo, USA, South Africa and India all have existing legislation that allows for different types of liability lawsuits to seek environmental remedies.

However, such legal action in the context of biodiversity conservation— [conservation litigation](#)—remains virtually untested in most contexts.

When liability suits are filed, they have been primarily used to address oil or hazardous waste pollution—as in the case of the 2010 Deepwater Horizon oil spill in the Gulf of Mexico. This case [provoked a series of environmental liability lawsuits](#), including by the US government, seeking remedies in the form of oil clean-up, and financial compensation for the long-term costs of restoring the harmed ecosystem and biodiversity. There were also more than 100 private civil liability lawsuits involving thousands of individual fishers, hotel owners and restaurants whose livelihoods and businesses were harmed, and were seeking compensation for lost income. These resulted in billions of dollars in remedies and payments.

However, there are also other types of promising cases: In Indonesia in 2012, the Ministry of Environment sued the Kalista Alam palm oil company for illegally burning down a peatland forest in order to convert it into agricultural land. The [lawsuit held them liable for more than US\\$20 million in remedies](#), including to reforest the affected site. In 2019, French marine protected area [sued a group of illegal fishers](#) who had been poaching inside the park, and found them responsible for providing remedies, including compensation to the park. More recently, an Indonesian court is currently evaluating whether a zoo that [illegally kept protected species could be held liable for the harm caused to the affected animals, species and human wellbeing](#). The case could see the offending company responsible for funding on-the-ground conservation actions, issuing public apologies, funding animal rehabilitation and supporting educational programs.

These types of cases illustrate the scope for future conservation litigation to address cases of harm to biodiversity.

Reasons for the delay

There are a number of likely explanations for why these types of cases are not already common practice in more countries: Related legislation is comparatively new in many high-biodiversity countries; although most wildlife conservation laws have been in place for many decades,

environmental liability legislation is more recent in most jurisdictions. Government agencies and conservation NGOs have established patterns of working, drawing on the legislation they are most familiar with. Moreover, many conservation groups have hired former criminal investigators, prosecutors and enforcement experts to support their efforts, and these colleagues are, by training, focused on criminal law strategies rather than liability-based strategies.

These types of lawsuits are likely also rare because they can be relatively complex to develop, especially when compared with traditional criminal law cases. While the punishments for criminal violations are usually articulated in law (e.g., minimum fines), liability laws do not typically enumerate the types of remedies that can be provided or how these should be presented. Instead, liability suits rely on plaintiffs making strong, evidence-based arguments that describes the nature of harm suffered, and the appropriateness of proposed remedies to fix that harm.

Most pressingly, these types of liability suits have simply not been tried in most jurisdictions, even in many where they are legally possible. As such, there are considerable legal procedures to navigate, and uncertainty about how judges and juries will react to them. Combined with the financial and technical barriers to pursuing legal action, there are significant challenges to operationalizing these types of lawsuits.

Opportunities for conservationists

I coordinate www.conservation-litigation.org, a collaboration among lawyers, conservationists and economists that is exploring the logistics of developing lawsuits for harm to biodiversity, including as a result of illegal wildlife traders and poaching kingpins. We recently prepared a [resource to help practitioners develop and understand the potential for remedy-focused lawsuits for biodiversity](#).

Our work aims to help catalyze future legal action. This is significant because, in many countries, these lawsuits could be pursued not only by government agencies, but also by citizens and NGOs. In many countries, they can represent not only their own private interests in the wildlife (e.g., lost livelihoods, stolen wildlife) but also the public interest—requesting remedies for harm to public resources.



"Pongo the Stolen Orangutan: How Law Can Heal" describes how conservation litigation could be used to help remedy the harms caused by illegal wildlife trade.

[Watch the 5 ½ minute video](#)

This broader right to sue is in stark contrast with the enforcement of criminal law, which is squarely the responsibility of the government; citizens and civil society groups cannot bring forward criminal prosecutions.

This limitation has, of course, frustrated many conservation groups, especially in contexts where government agencies fail to conserve, whether because they are under-resourced, lack capacity, have other priorities, or suffer from corruption. In many countries, this has prompted conservation NGOs to fill gaps, effectively assuming the roles of the State: conducting investigations into wildlife crimes, undertaking monitoring of protected areas, supporting police and prosecutors through arrests and case handling. However, even in this context, citizens and civil society are often heavily reliant on government cooperation. Conservation litigation can present a distinct avenue for conservationists to directly engage with legal processes to help bring about justice and conservation outcomes.

There are, admittedly, significant barriers to building these types of cases. However, their strategic use could be an important development for conservation. Alongside efforts like sustainable use, strengthened enforcement and demand management, conservation litigation could prove an tool for both biodiversity conservation and upholding environmental rights.

This work is supported by the UK Government through the Illegal Wildlife Trade Challenge Fund. [Conservation-litigation.org](https://www.conservation-litigation.org) is based at the [Conservation Governance Lab](https://www.conservancygovernance.org) at the Lancaster Environment Centre.

Dr Jacob Phelps, an environmental social scientist at the Lancaster Environment Centre, is dedicated to identifying strategies to protect tropical biodiversity. He leads the Conservation Governance Lab, which explores institutional, policy and legal responses to leading environmental challenges, such as

illegal wildlife trade and wildfire. He draws on a wide range of methods and approaches, and is active in the science-policy interface, including through CITES and IUCN.

Banner Image: Screenshot from Wood Grain Media's film "[Pongo the Stolen Orangutan: How Law Can Heal](#)"



Hunters and Anglers need to be on Frontlines of Biodiversity Conservation

By Jeff Crane

READ TIME 5 MINUTES

The Hunt Fish 30 by 30 coalition's priorities were directly acknowledged in the Biden Administration's report Conserving and Restoring America the Beautiful—but continued dialogue with, and active engagement by the sporting community is essential.

Conservation, indeed, is on the frontlines. As topics like biodiversity conservation and climate change continue to become more mainstream, there is more energy than ever being devoted to conversations about conservation efforts throughout the United States and around the world. Given these global trends, it was inevitable that conversations about how we manage

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our natural resources would become a top priority among many of our policymakers. Recognizing this and its inherent relationship with our outdoor passions as sportsmen and women, many in the sporting conservation community are using these opportunities to highlight our role in the conservation of our nation's resources because as the saying goes, 'You're either at the table, or you're on the menu.'

As you [might have read in the previous edition of Conservation Frontline's E-magazine](#), one particular initiative that members of the sporting conservation community have been following closely is the 30 by 30 Initiative (30 by 30)—a global campaign aiming to protect 30% of our planet's lands and waters by the year 2030. In January, President Biden issued an Executive Order where he outlined a goal of placing 30% of America's lands and waters under protection by the year 2030. While this is an ambitious goal, the ambiguous nature of the Executive Order left many with more questions, and concerns than it did answers. Seeing how some state-based 30 by 30 efforts failed to focus on conservation and left out the role of sportsmen and women, it was clear that our community needed to raise their voice to ensure that future actions designed to support the 30 by 30 Initiative were developed with a focus on recognizing and strengthening existing conservation efforts in the U.S. while highlighting the ability of the sporting conservation community to be a part of the solution.

The obvious first step is recognizing what has already been done to benefit biodiversity conservation. Fortunately, there are countless examples highlighting how the sporting conservation community in America has already stepped up to the plate. As the original conservationists, hunters and anglers—arguably more than any other stakeholder group—understand the importance of our contributions to conservation. So, what has our community done to steward conservation in the 30 by 30 Initiative so far?

As mentioned in my [previous article](#), the Congressional Sportsmen's Foundation (CSF) led the effort to establish the Hunt Fish 30 by 30 Coalition in October 2020 to amplify the voices of sportsmen and women and to highlight the importance of engaging America's original conservationists in conversations about biodiversity. The Hunt Fish 30 by 30 website is also used by policy makers as a resource to understand how we view 30 by 30. The Coalition has grown to include 60 sporting conservation organizations. In addition to the efforts of the Coalition, CSF and several partners continue to proactively engage the Biden Administration, Congress, and state legislators in an effort to steer 30 by 30 policies in a direction that elevates conservation--the wise and sustainable use of natural resources--over preservation.

This united front encouraging hunters and anglers to get involved in conversations about 30 by30 has been largely successful at steering this initiative in the right direction. The culmination of this success was first realized when many of the Hunt Fish 30 by 30 coalition's priorities were directly acknowledged in the Biden Administration's "Conserving and Restoring America the Beautiful," a report issued in May that included the Administration's 30 by 30 recommendations following President Biden's Executive Order in January.

The report, completed jointly by the Secretaries of the Interior, Agriculture, Commerce, and the Chair of the Council on Environmental Quality was largely praised by members of the sporting conservation community who appreciated the inclusion of our priorities in this initial report. In addition to the inclusion of many of our priorities, and as a result of our direct engagement with the Administration, the report directly quoted the preamble of the Hunt Fish 30 by 30 Coalition's Community Statement in the beginning pages of the report, an indication that the needs of sportsmen and women are being recognized and considered in developing approaches to pursue 30 by 30 goals.

Throughout the report, the Administration references the role of the hunting and angling community in the United States' history of conservation successes, and repeatedly calls for stakeholder engagement, including directly from the hunting and fishing community and key conservation professionals. This includes input from state fish and wildlife management agencies who more than any other entity, possess the professional knowledge and experience needed to design effective and enduring conservation programs. These agencies have been working to reverse declining biodiversity trends for years and have developed roadmaps to biodiversity conservation in the form of State Wildlife Action Plans (SWAPs). These SWAPs, which contain conservation plans for plants and animals identified as Species of Greatest Conservation Need, highlight the importance of engaging state agency officials at all stages in the development of a plan to enact a successful 30 by 30 Initiative in the U.S.

The report also highlighted the Administration's intent to respect private property rights, a major concern shared by many who worry that the Initiative is a veiled "land grab." While conservation efforts on state and federally-owned lands will obviously be important, the report highlights the importance of voluntary conservation on our nation's working lands and forests and acknowledges that private landowners are key stakeholders who should be encouraged and incentivized – not required – to participate in conservation efforts. Keeping these notions front-and-center will be critical as the Administration takes its next steps toward

the creation of the American Conservation and Stewardship Atlas, the forthcoming inventory of lands that should be considered “protected” under the 30 by30 framework.

Finally, the report distinguishes between preservation and conservation, recognizing conservation as the proper approach to any 30 by 30 pursuit—a primary assertion of the Hunt Fish 30 by 30 coalition. Using the concept of 30 by 30 to push a “hands-off” preservation agenda consistent with the “land grab” fears often associated with the 30 by 30 Initiative would lead to poor results for fish and wildlife populations, outdoor recreation access, and rural America. It’s essential that America’s sporting community continues to be engaged and ensure that existing conservation efforts are recognized and included in the American Conservation and Stewardship Atlas while championing additional conservation efforts, including voluntary and incentive-based private lands options. Additionally, we need to continue to stand firm against policy proposals that take a different approach in the definition of “protection” and “conservation.”

While the “America the Beautiful” report included many of our priorities and generally left us feeling cautiously optimistic, there is still much to be done to ensure that 30 by30 efforts in the United States are consistent with the priorities that we share as sportsmen and women. Many key aspects of the Biden Administration’s plan are still yet to be defined and many questions remain unanswered. CSF and our Hunt Fish 30 by 30 partners will continue to engage with the Biden Administration to ensure our questions are answered as the initiative is refined and ensure that sportsmen remain at the bedrock of our nation’s conservation footprint henceforth. In other words, we will continue to make our voices heard to maintain our seat at the table while keeping our outdoor heritage off the menu.

Sign the [petition on huntfish3030.com](https://petition.huntfish3030.com) today to acknowledge hunting and fishing in 30 by 30 policy discussions.

Jeff Crane, a regular contributor to Conservation Frontlines, is President of the Congressional Sportsmen’s Foundation, based in Washington, DC.

Banner image: Cover photo of Conserving and Restoring America the Beautiful 2021, a preliminary report to the National Climate Task Force recommending a ten-year, locally led campaign to conserve and restore the lands and waters upon which we all depend, and bind us together as Americans.

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Counting Sheep: Research pioneers promising new wildlife survey method

By Ben Ikenson

READ TIME 9 MINUTES

Researchers from the U.S. Fish and Wildlife Service and the New Mexico Game and Fish Department pioneered an innovative new way to estimate animal population sizes simply, safely, and affordably, with remarkable accuracy. This will help biologists around the world to confidently apply distance sampling techniques with camera trapping to estimate the population size of any wild, unmarked animal.

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On a remote site of rugged, mountainous terrain in the southwestern corner of New Mexico lies the Red Rock Wildlife Management Area. Since 1980, this 1,500-acre captive breeding facility for desert bighorn sheep, originally stocked with animals captured in the nearby San Andres Mountains and in Mexico, has produced more than 500 bighorn that have been used to augment wild sheep populations throughout the state. The facility and its brood have been central to recovering desert bighorn sheep from its state-endangered status, and enabling it to become a hunted big game species.

“It’s one of the biggest conservation success stories in the state,” says Eric Rominger, a biologist with the [New Mexico Game and Fish Department](#) who has worked on bighorn sheep conservation for more than forty years. “These animals were on the brink of extinction and are now a viable presence in the ecosystem.”

More recently, work at the site produced another major conservation milestone. Rominger, teaming up with biologists from the [U.S. Fish and Wildlife Service](#), used the Red Rock facility—and the desert bighorn sheep it contains—to field test a promising new wildlife survey methodology. By using camera trapping and accounting for the undetected proportion of the population through distance sampling, the research team validated its results with unbiased estimates of abundance for a known bighorn sheep population. Their research, conducted over the last four years and recently described in the research journal, [Scientific Reports](#), pioneers an innovative new way to estimate animal population sizes simply, safely, and affordably, with remarkable accuracy. And, it has implications for wildlife management efforts across the globe.

Counting sheep is not just for the sleep-deprived. Sound wildlife management requires good data. By helping determine animal population sizes, wildlife surveys are vital to effective stewardship strategies, be it regulated hunting and quota setting for game management or the conservation of endangered species.

“But counting animals is no simple task,” says David Stewart, a statistician for the U.S. Fish and Wildlife Service. “Surveys must have desirable properties, with samples that are both representative of the population and replicable; and they should produce an estimate that is consistent, unbiased, precise, and, most important, easy to compute.”

But when it comes to being surveyed, all animals are *not* created equal. Those with distinct markings, such as ocelots or giraffes, make for more convenient individual identification, and

therefore easier population surveys. Similarly, animals that occupy open areas, like Serengeti grasslands or arctic tundra, are readily observed and counted from small aircraft. Obviously though, many species don't have distinctive telltale physical features or inhabit open landscapes – and a simple process is needed for counting them too.

Stewart and company used camera traps, placed in animal habitats to capture images when animals move in front of them. Unlike people, cameras operate all day, every day, without complaint. The challenge with camera trapping, however, is transforming animal images into useful metrics about wildlife populations.



Large desert bighorn ram “lip-curls” ewe on camera (the captive breeding facility at Red Rock Wildlife Management Area RRWMA, New Mexico, USA). The “lip-curling,” or Flehmen response, seen in this impressively adorned ram allows him to detect pheromones, and other olfactory characteristics of his environment. Camera trap photo.

“In the past, estimating abundance of animal populations using camera traps was limited to those containing marked individuals or animals with uniquely identifiable pelage [fur] patterns,” says Matthew Butler, a biometrician with the Fish and Wildlife Service. “With

uniquely identifiable animals, biologists can implement mark-recapture techniques to estimate abundance from camera trap images.”

Grant Harris, another U.S. Fish and Wildlife Service biologist and project collaborator, explains: “Pretend you want to know the number of catfish in a pond. You boat out, catch 50, and mark each with a small tag before releasing them. Two days later, you catch another 50 catfish, and 25 have marks (the tags). You tagged 50, re-caught half, so the pond estimate is twice the original sample, namely 100 fish. Basically, this is how the estimation process works with marked animals, be it fur patterns or tags, as in our example.”

With many animals though, it’s not that easy to identify individuals, and marking them with unique tags can be expensive, time-consuming, and sometimes quite dangerous.

“Therefore, a technique that doesn't rely on uniquely marked individuals was needed to move camera trapping from hobby to science,” Butler says.

To estimate animal numbers without marks, the team combined camera trapping with distance-sampling, a process that builds a mathematical function based on the assumption that animals further from an observer, or camera, are less observed than those that are close.

The Red Rock Wildlife Management Area provided the team with an unprecedented opportunity to field test their methodology with a *known* animal population size. Of the bighorn population at Red Rock, Rominger says that all births, deaths and removals are recorded “...and, since 1997, the facility has been surveyed each year, resulting in a true count. So, this intensively managed herd provided an extremely rare opportunity where the population size of a wild animal in native habitat was known.”

Harris adds, “Having this known population was important because we could test our method and evaluate how well it worked by comparing our results to truth.”

At Red Rock, the research team combined imagery gathered from 11 trail cameras spaced along an 800-meter grid, and used distance sampling to estimate the abundances of the desert bighorn sheep within it. The team measured the distance between the camera and every desert bighorn sheep pictured, building a mathematical model to describe that relationship.

Distance sampling isn't new, but coupling it with camera trap imaging is a relatively novel approach to conducting wildlife surveys. Traditional distance sampling-based surveys involve people going to sample locations and measuring distance-observed animals. For animals that avoid people, this technique is clearly not ideal. Further, with observers, data amount depends on having enough people performing the counts, and their time (and cost) can be a limiting factor. Replacing people with camera traps, the team theorized, could potentially resolve these issues, and increase sampling acquisition 24/7.



Desert bighorn ewe and young lamb caught on camera (the captive breeding facility at Red Rock Wildlife Management Area RRWMA, New Mexico, USA). This new lamb knows that keeping close to its mother is necessary for survival. Within days of birth, lambs are capable of navigating the same rugged and steep terrain as their mothers. Camera trap photo.

Without known population numbers, wildlife managers can't really know with certainty if a technique works. As Butler explains, "biologists often have no way to verify population estimates and end up comparing results from multiple techniques to assess if the new method

worked. This is poor practice though, because no one knows which, if any, of the estimates are correct.”

Stewart adds, “rarely do opportunities exist to field-validate a survey against a known population size, to determine if the estimates produced are unbiased and precise.”

Butler and his peers were able to verify their results at Red Rock. Their work was unbiased and, as their study indicates, the survey method produced results that were consistently within five animals of the actual known desert bighorn population size. The true number of adult bighorn sheep, for example, were 53 in the fall of 2017 and 69 in the spring of 2018; and their method estimated a mean of 55 and 66 respectively.

“This is very significant,” says Harris. “In the U.S., helicopters are often used to count bighorns, which is expensive and dangerous. Globally, over 70 percent of wild sheep and goat species are endangered and, in most places, it’s unaffordable to fly and count them, so population sizes are unknown. Our method offers a cheap and applicable solution.”

Indeed, the [International Union for Conservation of Nature](#) recently highlighted the team’s research as filling an important data gap for improving species’ threat assessments and informing conservation efforts, especially for populations of wild sheep and goats.

In fact, the innovative survey technique was used, and recently [documented](#), to estimate population sizes of bharal, a *Caprinae* species, and musk deer, a primitive deer-like ruminant, in a remote region of India. Such work contributes to the [Wildlife Institute of India](#)’s impressive endeavors to assess ungulate status and the associated anthropogenic pressures in the northeastern region of the country.

Of course, *Caprinae* management efforts in remote areas such as the Trans-Himalayan region and elsewhere include their own complex challenges. Throughout Eurasia, Northern and Eastern Africa, male and female mountain goats, for example, often display different patterns of space usage. The Alpine ibex inhabits the European Alps, and in this region females prefer rocky areas more than their male counterparts. Sampling designs, therefore, must rely on information specific to the habitat selection of not only the target species but of each gender too.

“Biologists must also ensure that sample size (and the number of cameras needed) is attainable, to generate the precision required,” adds Harris.

Fortunately, to this end, this team developed a “how to” [document](#) describing the procedure for determining the sample requirements to meet a given precision objective.

Currently, with most cameras costing around \$200 U.S., the financial investment in this distance-based approach becomes more tenable than an aerial flight. (50 cameras would cost around \$10,000 US, whereas the cost of a survey with helicopter flight typically runs around \$50,000.)

Granted, the investment of time in analyzing images and identifying species and the distances between the animal in the image and the camera is considerable, but the work is becoming increasingly streamlined with emerging image processing and pattern recognition techniques. For instance, the freeware designed by Microsoft known as MegaDetector can identify when an animal is present in an image, though it cannot yet identify the animal to species.

Additionally, despite the challenges, the abundance procedure has immediate applicability. The method is separable by animal sex and age class, to estimate abundances for different classifications of rams (Class 1, 2, 3 and 4; older rams with larger horns are in the higher age classes). Such data assist quota setting in areas with sustainable hunting in North America, Central Asia, and North Africa. Sudan, for instance, recently allowed the hunting of endangered Nubian ibex, and abundance estimation with camera traps would allow setting sustainable quotas. The method would also enable quantifying the responses of these populations to hunting.

Worldwide, non-governmental agencies often support *Caprinae* efforts through the removal of predators and the establishment of water sources to facilitate population growth. The efficacy of these strategies also could be quantified using population estimation with camera traps, to measure the returns on the financial investments associated with the work.

In countries throughout Southern Africa, [USAID's Community-Based Natural Resource Management program](#), which emphasizes localizing resource management, could similarly benefit. The program includes regulations to match consumable resources with quotas that are understood, agreed upon, and respected by the communities managing them. Using the

distance-based camera trap methodology, these communities can generate such quotas robustly and confidently.

“We actively pursued this project because so many *Caprinae* are in dire conservation need,” says Harris. “Their existence depends on empowering others with safe, simple, and inexpensive tools to gather the data necessary to conserve and manage them.”

Furthermore, the approach is applicable beyond the realm of *Caprinae* conservation. For management of chimpanzees in Côte d'Ivoire, marmots in Italy, or sitatunga in Uganda, the distance-based camera trapping method is currently providing assurances that wildlife surveys reflect a greater degree of accuracy.

“Now,” says Butler, “biologists around the world can more confidently apply distance sampling techniques with camera trapping to estimate the population size of any wild, unmarked animal. This is exactly the kind of approach needed in jungles, forests and remote mountains.”

Ben Ikenson is an independent journalist and freelance writer from Albuquerque, NM, covering a wide range of topics. His articles on wildlife conservation appeared in national and international periodicals (High Country News, Earth Island Journal, Pacific Standard, and many more). Ben also writes for the U.S. Fish and Wildlife Service.

Banner Image: Camera Trap photo (two desert bighorn rams clash at Red Rock Captive Breeding Facility, New Mexico, USA. The older ram displays his dominance. Physical battles between males occur year-round though the causes—food, water, and mating opportunities—may vary seasonally.



Elephants are thriving in Namibia

By Gail C Thomson

READ TIME 15 MINUTES

A veteran conservationist interviews scientists experienced in the incredibly complex (and expensive) process of counting elephants. It turns out that Namibia's elephant numbers are several times higher than the estimates of protectionist activists (and their organizations).

(Based on interviews with Kenneth /Uiseb, Debbie Gibson and Colin Craig).

The African savannah elephant was recently [classified as Endangered](#) by the International Union for the Conservation of Nature (IUCN), citing a decline throughout Africa of 60% over the past 50 years. Yet in Namibia elephant numbers are increasing and their range is expanding; a testament to sound long-term conservation policies. But how do we know that they are increasing? How do you assess the status of an animal that ranges over thousands of square kilometers/miles with any degree of confidence? I spoke to the experts to find out.

Respect science, respect nature, respect each other.

The small four-seater Cessna aircraft is full. The pilot is flying slowly in a dead straight line, maintaining an altitude of 300 feet above ground level. Behind him, two passengers stare intently out the windows; searching the ground between two black rods fixed to the plane's wing struts. One passenger suddenly calls out: left, elephant bulls, two, followed shortly by the other: right, elephant cows, ten in, five out. The fourth person in the plane, sitting next to the pilot, decodes their cryptic messages and jots them down on a datasheet.

Once they have reached the end of this straight line (known as a transect) on their GPS, the pilot will turn the plane around, find the next parallel transect line and fly back along it – keeping flying speed and height as constant as possible. They keep it up until they have flown a planned number of transects for the morning, at which point they will return to base for a much-deserved rest. Every day for the next few weeks they will fly many transects each morning and afternoon until they have covered the target landscape sufficiently to estimate that population of elephants.

How do aerial elephant surveys work?

There is a lot more to aerial surveys than flying around looking for big grey shapes in the savannah. Debbie Gibson, a key team member who plans and co-supervises aerial surveys in Namibia explains: Before we even start flying, we use our knowledge of the area to identify and map strata that are sub-blocks of the whole area that we can cover in a day or two. Strata in areas with higher elephant densities are covered with more tightly spaced transects (e.g., 2.5 km apart) than those with lower elephant densities (e.g., 5 km apart). This increases precision in areas with high densities without introducing bias into the overall count.

“Once we get out to the survey area, we run several calibration flights over the airstrip to measure exactly how much of the ground we are seeing from the air,” Debbie continues, “and to ensure that the observers are searching similar widths of ground on either side of the plane using the rods fixed to the wing struts as guidelines.” Besides allowing for calculations of the ground covered, these rods set realistic limits for searching. Although observers can see all the way to the horizon from an airplane, they are highly unlikely to see all of the elephants in that huge, undefined area. Instead, they focus their search on the known area covered between the rods, where they are less likely to miss any distinctive grey shapes.

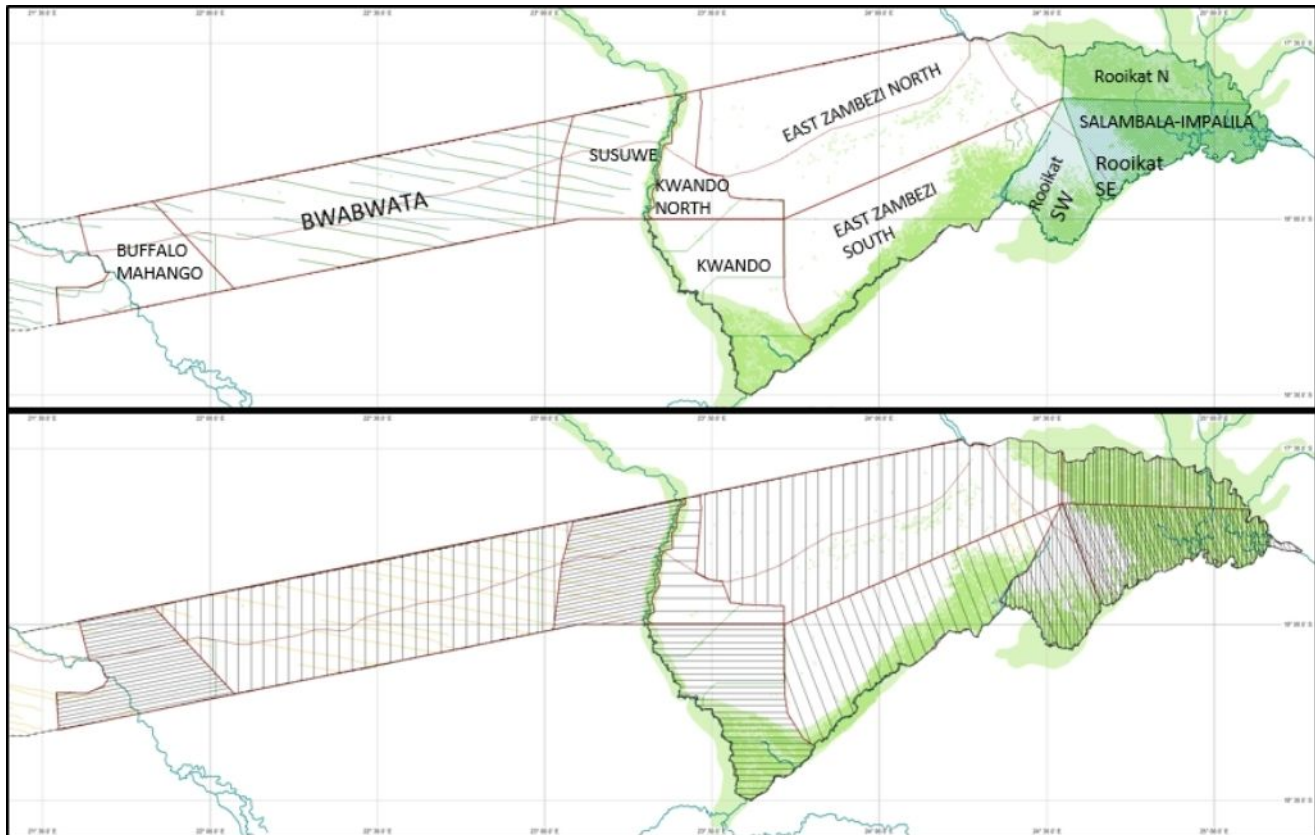


Fig. 1: The strata (top map) are blocks of the overall area that can be covered in a reasonable length of time. Transects (bottom map) are then mapped onto the strata according to the expected elephant densities in each of them – the density of transects matches the expected density of elephants in each stratum. Source: Gibson & Craig 2019a

If the sharp-eyed observers happen to see elephants outside of the defined search area, then they are recorded as out elephants—i.e. beyond the measured sample area. These sightings are mapped and their numbers reported, but only the in elephants are used in the statistical analyses to generate a population estimate. Surveys are also done in the dry season when the vegetation is less dense and visibility is high to reduce the chances of missing elephants.

Debbie further emphasizes the importance of highly experienced observers. “Our regular observers, Ngoni Chitemamuswe and Fungai Muroki, have counted elephants and other wildlife on aerial surveys since the 1990's and have worked with us in Namibia, Malawi, Mozambique and Zimbabwe. Finding such experienced, reliable observers can be difficult for those doing aerial surveys for the first time in other countries.”



This small family herd of elephants are counted as “in” the sample area between the black rods. (M. Brassine Photo).

Biologists and conservation managers are rarely able to count all of the animals in their area of interest with 100% accuracy, so the more realistic option is to count the animals in a sample of the area and use statistical methods to estimate population size for the whole area. These estimates also give us an idea of how precise they are, which is expressed as our confidence in the estimate. In simplified terms, an estimate of $20,000 \pm 4,000$, for example, tells us that we are 95% confident that the actual number lies between 16,000 and 24,000.

Even with all the detailed planning, experience and analyses in the world, one aerial survey is not particularly useful on its own. Scientific wildlife monitoring of all kinds (by road, air, or even remotely using camera traps) only becomes useful when surveys are repeated many times using the same or very similar methods. While trying to get extremely precise numbers of elephants ranging over huge areas in northern Namibia is nearly impossible, repeat surveys can be used to show a trend over time. Trends are especially important in conservation, because they tell us if the population is healthy and growing, or under severe threat and declining.

Namibia's Ministry of Environment, Forestry and Tourism (MEFT) has conducted aerial transect surveys since 1979. The earliest surveys, however, were not as refined as they are

today and important variables (e.g. height above ground level) were not kept constant. Colin Craig has been involved in standardizing aerial surveys in Namibia since 1994, having learned these survey techniques while working for Zimbabwe National Parks (the techniques were originally developed in East Africa). Although our equipment has improved and we have refined our survey design over the years, he points out, the surveys done in Etosha and the north-eastern parts using the same methods since 1994 are all comparable. The MEFT therefore has a fairly good handle on the trends in elephant numbers over time for each of the major subpopulations in the country.



© GC Craig

Mr Chitemamuswe and Mr Muroki, two highly experienced observers, searching for elephants during an aerial survey. (C G Craig Photo).

Aerial survey techniques have thus been developed and refined specifically for counting elephants in Africa's savannahs over several decades by many different scientists (it is far more difficult to count their forest cousins, which are [now Critically Endangered](#)). Colin compiled the [best practices](#) generated from scientists' accumulated experience in 2012 for the IUCN's Monitoring of the Illegal Killing of Elephants (MIKE) project. [The Great Elephant Census \(GEC\)](#) in 2014-15 used these techniques for the [first standardized survey](#) of elephants completed in multiple African nations at the same time.

Namibia and the Great Elephant Census (GEC)

This is where the story of counting elephants in Namibia becomes strangely controversial. Thinking that Namibia's official estimates are too good to be true, some commentators have guessed that the number of elephants in the country is much lower than official estimates (e.g. "[probably closer to 5,600](#)" – less than a quarter of the official estimate). These guesses are often accompanied with the accusation that Namibia refused to take part in the GEC because they wanted to inflate the elephant numbers for [nefarious reasons](#).

In reality, Namibia's aerial surveys were done at the same time as the GEC in other countries (in both 2014 and 2015) and were coordinated with the GEC's Botswana survey of 2014 and Zambian survey of 2015. Most of the surveys in Namibia and the 18 countries that were part of the GEC were done using the transect sample method described here (sometimes local conditions favor other methods).

Not only were the data collected the same way, but all of this information was sent to the centralized [African Elephant Database](#) managed by the IUCN's [African Elephant Specialist Group](#). A team of independent experts from this Specialist Group reviewed all of the results (including Namibia's) and collated them for the 2016 African Elephant Status Report ([publicly available here](#), pp. 169-174 covers Namibia).

Since there is a huge variation among African countries in terms of the resources they devote to monitoring and conserving wildlife, the Status Report includes an objective assessment of the quality of the data produced and the status of elephants in each country. Having trawled through the raw data and examined the methods used by aerial survey teams through the years, the expert review panel concluded that for southern Africa: "There is reliable information available for Botswana, Namibia, Swaziland, South Africa, Zambia and Zimbabwe." And further: "In Namibia the elephant population has increased, notably in the north-east

Kavango and Zambezi Regions.” The actual estimate given for the Namibian population in this 2016 report was $22,754 \pm 4,305$.

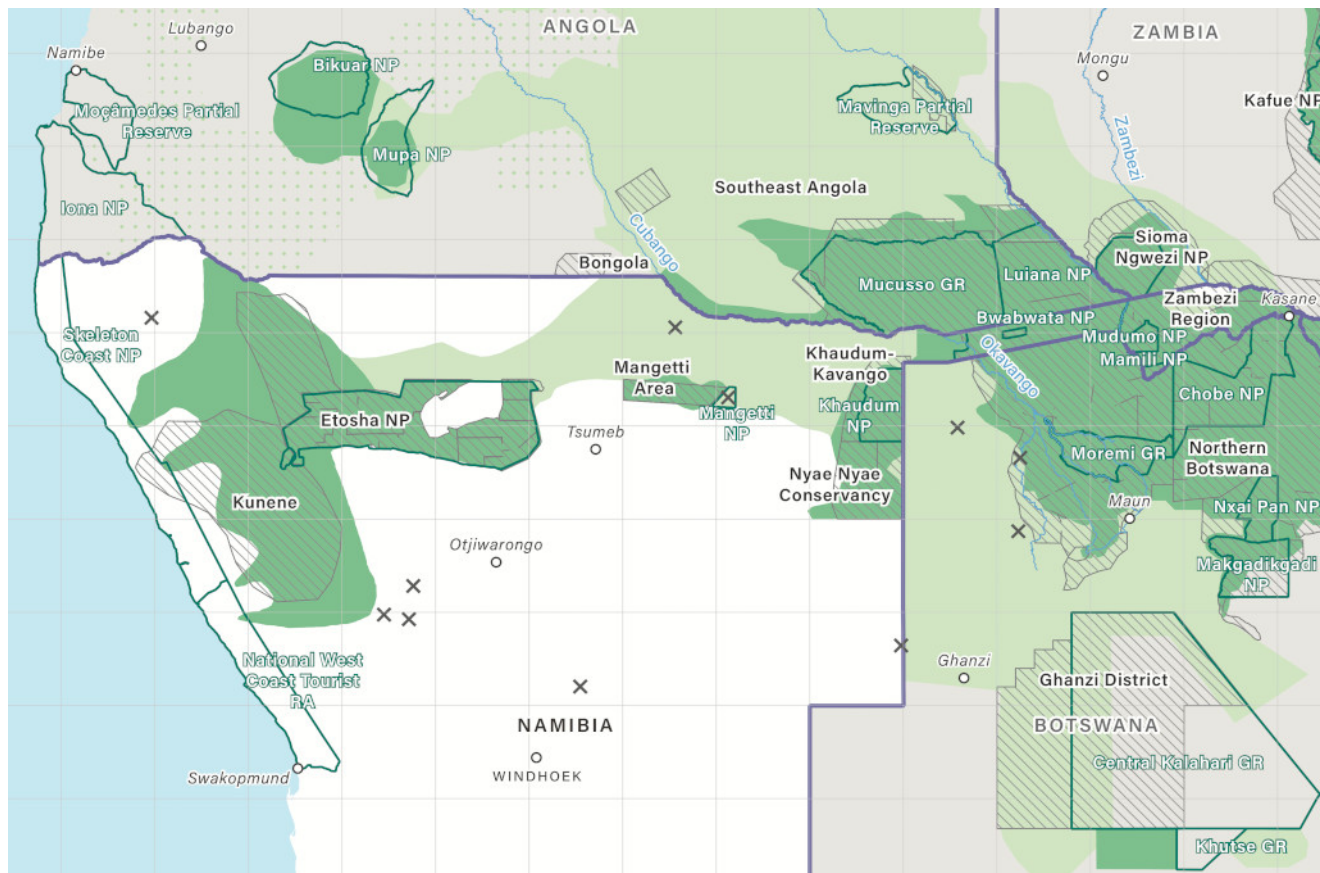


Fig. 2: Elephant distribution in Namibia from the 2016 African Elephant Status Report (Thouless et al. 2016). Dark green indicates known distribution, light green is the possible distribution, hatched areas are data input zones (i.e. areas from which data were collected, mainly through aerial surveys) and X marks individual sightings outside of their known range.

Considering the above, why was Namibia not included in the GEC’s results, which were published separately from the Status Report?

Kenneth /Uiseb, Deputy Director of Wildlife, Monitoring and Research at the MEFT, shed some light on this matter. “Vulcan Inc. [established by Microsoft billionaire Paul Allen] [funded the GEC](#) aerial surveys in the other countries on condition that their raw data would be provided to the GEC team for analysis.” He explains further, “but we had our own budget within the MEFT for the 2014-15 surveys, and we trusted our usual team of surveyors to maintain high standards for collecting the data and doing the analyses.”

For many countries that do not have the resources to fund their own surveys, Vulcan's support was gratefully received and the conditions were accepted. Yet as Mr /Uiseb indicates: "We had no need for external funding and consequently saw no reason to send our raw data to the GEC team for analyses that we could do ourselves. As a member of the IUCN, however, we willingly contributed our data to the African Elephant Database." Interestingly, the Database itself received support from Vulcan at the time that the 2016 Status Report was published.

The latest elephant numbers and trends

The MEFT commissioned Colin and Debbie to do another aerial survey in the northeastern part of the country in 2019 to update the information on the elephant population in this crucial area. They also completed a [survey in the northwest during 2016](#) to update the numbers for this relatively small but important elephant population.

Elephant numbers for Etosha National Park are still based on a 2015 survey (published in the Status Report), but long-term trends reveal that this is the slowest-growing population in the country.

The 2019 survey produced two reports covering the western and eastern sections of the northeast, respectively. The [western section](#) covers Khaudum National Park, nearly all of Nyae Nyae Conservancy and some parts of other neighboring communal conservancies (hereafter referred to as the Khaudum survey). The [eastern section](#) covers the entire Zambezi Region, including the Bwabwata, Mudumu and Nkasa Rupara National Parks, the State Forest and 15 communal conservancies (hereafter the Zambezi survey).

The 2019 estimate for the Khaudum survey was $7,999 \pm 3,028$ and the estimate for Zambezi was $12,008 \pm 2,598$. The 2015 estimate from Etosha was $2,911 \pm 697$, while the 2016 north-west estimate was $1,173 \pm 681$. If we assume that elephant numbers have not changed in these latter populations between 2015 and 2019 (it is more likely that they have grown slightly), we can conservatively estimate the whole Namibian elephant population at $24,091 \pm 4,107$ in 2019. The claims that there are only 5,600 elephants in the whole country are easily debunked from the observers' datasheets produced during these surveys. If one includes elephant sightings both in and out of the sample area, the observers actually saw 10,051 elephants in just a fraction of the total area for which the national estimate was generated.

Since the survey methods were standardized in 1994, the Khaudum survey has been completed six times, Etosha seven times and Zambezi nine times using the transect sample

counts described here. Repeat surveys are the gold standard for wildlife monitoring and provide the all-important population trends, which tell us how successful (or not) local conservation efforts have been.

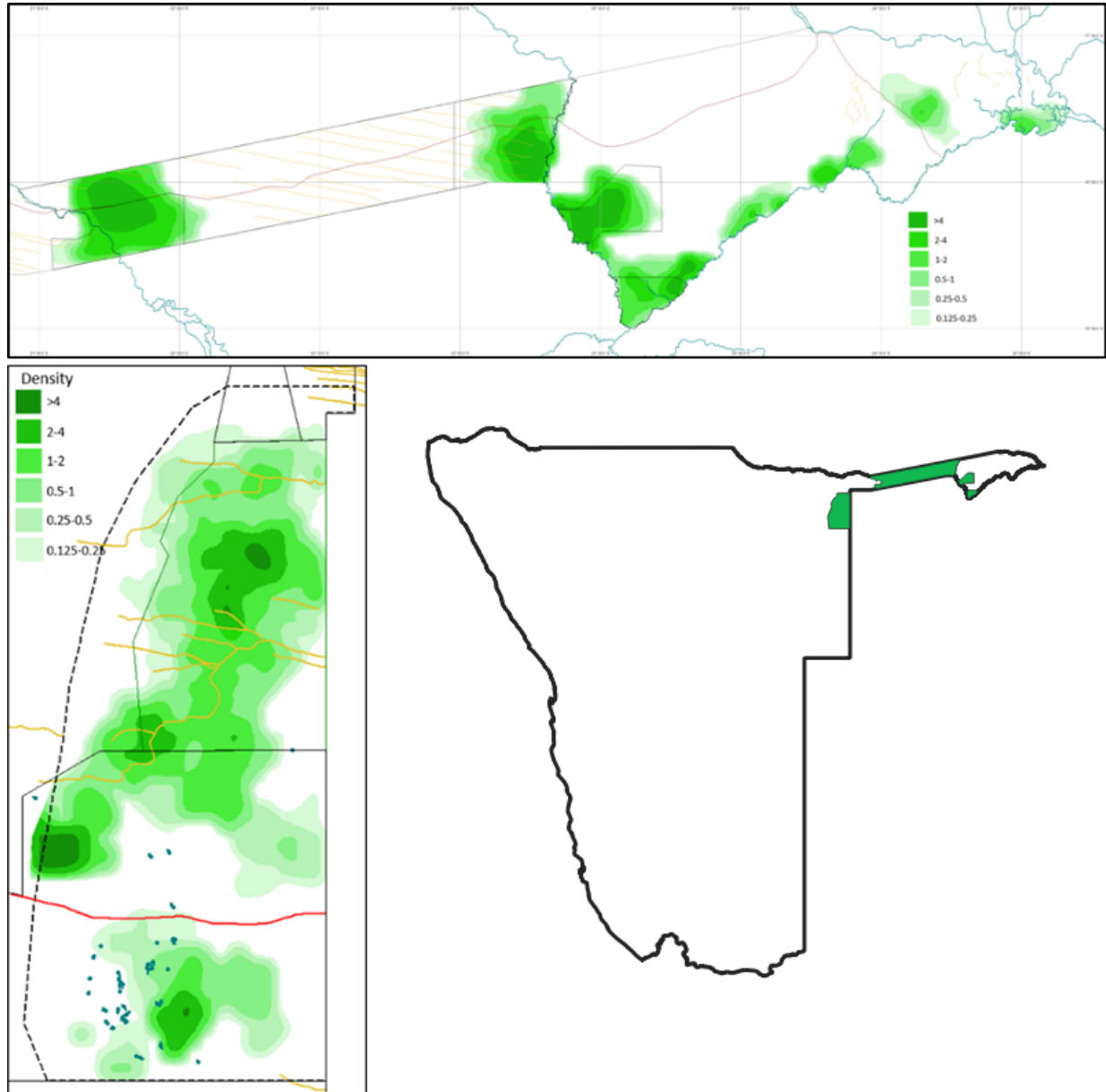


Fig. 3: The Zambezi map (top) and the Khaidum map (left) were produced from the surveys in the dry season of 2019 (both maps © MEFT). The smaller map of Namibia provides context for size and location of the survey areas. Darker green colors indicate higher elephant densities, the figures refer to the number of elephants per square kilometer. Source: Craig & Gibson (2019a and 2019b).

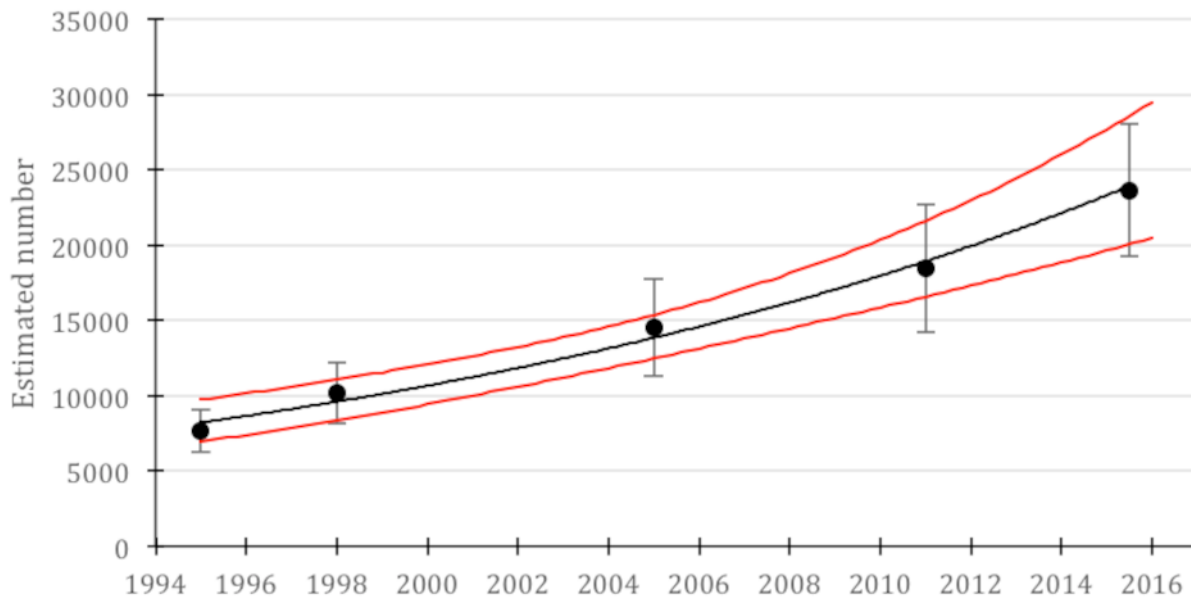


Fig 4: The elephant estimates for each of the nationwide surveys are represented by black dots with the confidence interval shown as lines extending above and below each dot. The black line gives the “best fit” for the data, from which we calculate the rate of increase over time. The red lines show the likely limits within which the true population lies at any time (Source: Draft Elephant Management Plan, MEFT 2020).

Counting elephants in the north-west is far more challenging than in the north-east, as there are relatively few elephants in a huge area and the mountainous terrain makes flying at a set level above the ground all but impossible. Consequently, counting methods have changed much more in this region than the others, as scientists are still refining their methods to balance cost-effectiveness with accuracy. The most recent count in 2016 employed three different methods that were allocated to different parts of the region based on the ruggedness of the terrain and knowledge of the elephant population. Even though this is the best count thus far for the north-west, it is still the least precise estimate of all the subpopulations. This population makes up only about 4% of Namibia's elephants, however, so the lack of precision here has little influence on the national total.

Aerial surveys were completed in the four key elephant areas in 1995, 1998, 2004-05, 2011 and 2015-16, thus providing nationwide estimates for each of these points in time. When these estimates are plotted on a graph, we find that the overall trend for the Namibian

elephant population during 1995-2016 is increasing. The slope of the trendline that runs through the estimates is then used to calculate an annual growth rate of 5.36%. This is

biologically realistic, as elephant population growth rates can be as high as [7% under ideal conditions](#) that are rarely met by free-ranging elephants.

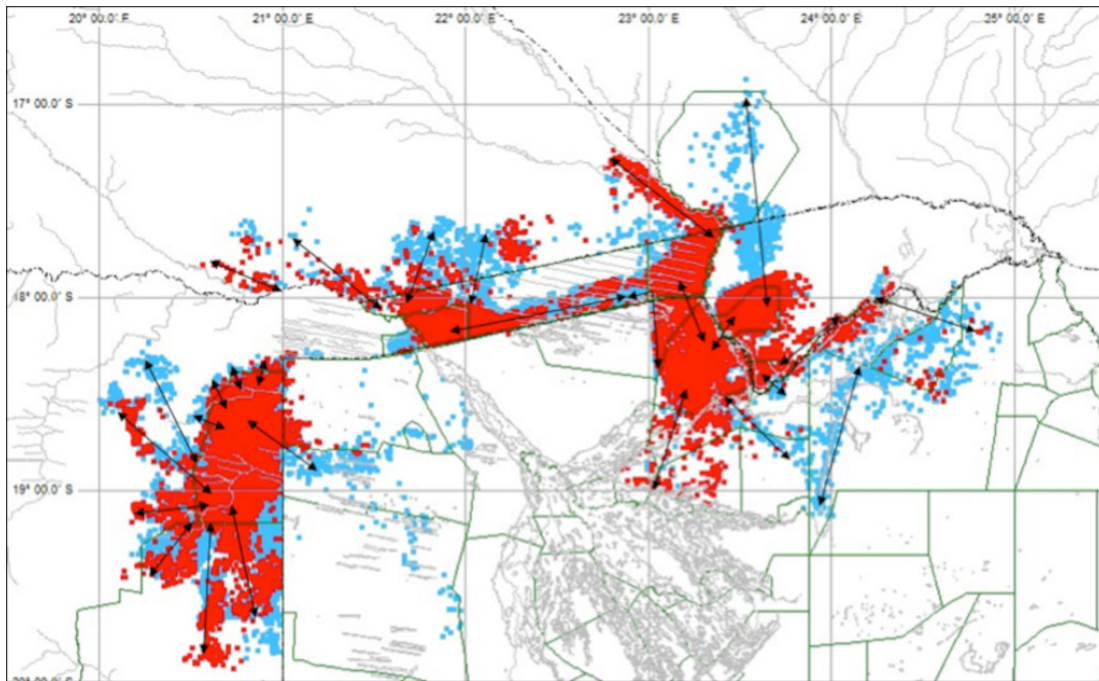


Fig 5: Elephant movements recorded using satellite collars on individuals captured in Namibia. Blue dots are GPS points taken in the wet season, red dots in the dry season; the arrows indicate key movement patterns. While there is occasional transboundary movement from Khaudum in the west, the main movements are from the Zambezi population into other KAZA countries (especially Botswana). Source: MEFT (2020); data from WWF-Namibia.

Under-counting elephants and transboundary movements

The national elephant-estimate of about 24,000 was calculated only for those populations that have been surveyed repeatedly from the air and is therefore likely to be an underestimate. Mr / Uiseb clarifies: “[Based on farmer reports](#) to us of conflict with elephants, we know that elephants are expanding their range in Namibia; they are moving into areas that have not been regularly surveyed. National population numbers also exclude elephants in private game reserves.”

Another concern that is frequently voiced is that elephants in the eastern Zambezi Region move freely between Botswana and Namibia. We therefore cannot be certain if the growth recorded for this large population is due to births or immigration, or an unknown combination of the two. Nonetheless, the aerial surveys are always done in the late dry season (September/October), which tells us that the part of the elephant population that usually spends the dry

season in Namibia is increasing. Doing surveys in different seasons would only show short-term elephant movements and tell us little or nothing about long-term population health (reduced visibility in the wet season would also introduce counting errors).

Under high poaching pressure, one would expect the elephants to spend less time in Namibia and those that do come over would experience high levels of mortality, which would together result in decreasing numbers. In terms of Namibian elephant conservation efforts, which are especially focused on reducing poaching in this part of the country, the increasing elephant population is good news. This is confirmed by recent poaching statistics, which show that [only 11 elephants were killed illegally in 2020](#), down from a high of 78 in 2014.

Since conservation policies differ from one country to another, it is important to find out how elephants are faring in each country that contributes to the Kavango-Zambezi (KAZA) Trans-frontier Conservation Area. Nevertheless, a multi-country aerial survey of elephants in KAZA with several experienced survey teams flying simultaneously in their respective countries is high on every elephant conservationist's wish list.

Conclusion

Elephants are highly valued within African cultures and economies, perform irreplaceable ecological functions, and are loved and revered around the world. Monitoring them to inform conservation action is therefore a weighty responsibility that the Namibian government takes extremely seriously. This is why they commission professional teams of dedicated people who plan meticulously, search carefully for thousands of hours from cramped little aircraft, and finally analyze and report their results with careful attention to detail. This work is an important contribution to our knowledge of elephants, and Namibia's successful conservation efforts for this endangered species are an example for the rest of the world.

Gail C. Thomson is a conservationist who has worked in South Africa, Namibia and Botswana on human-carnivore conflict, community conservation and wildlife monitoring. She is interested in promoting clear public communication of science and conservation efforts in Southern Africa. A version of this article was [first published](#) on April 5 in Conservation Namibia. This article is based on Gail Thomson's interviews with Kenneth /Uiseb, Debbie Gibson and Colin Craig. More aerial survey reports from Namibia can be found here: <http://the-eis.com/elibrary/search-wildlife-surveys>

Banner Image: Gail C Thomson photo



UK charity raises funds at expense of Africans

By Dr Chris Brown, Namibian Chamber of Environment

READ TIME 2 MINUTES

Community leaders from six African countries lodge a complaint to the Charity Commission for England and Wales over Born Free Foundation's false claims which undermine African conservation achievements.

As the UK parliament considers bans on hunting trophy imports, community leaders representing millions of rural Africans have launched an official complaint against one of the key players in the campaigns against trophy hunting.

Representatives from communities of six southern African nations are accusing celebrity-backed animal charity the Born Free Foundation of waging a campaign of disinformation against trophy hunting that will damage African conservation activities, and undermine their human rights and livelihoods.

The complaint to the Charity Commission for England and Wales focusses on the Born Free Foundation's continued assertion that hunting "does not support conservation or local

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livelihoods". Community leaders from Botswana, Namibia, South Africa, Tanzania, Zambia, and Zimbabwe, all of which have trophy hunting as a significant part of their successful conservation strategies, state that the Born Free Foundation's assertions that trophy hunting doesn't support local communities or conservation are "demonstrably false" and "misleading."

Angered at continued efforts to undermine their conservation achievements, and right to sustainably manage wildlife, the leaders' (who represent several million people) complaint states "that the actions of this Charity serve to undermine the human rights and livelihoods of several million people living in our communities, as well as threaten the continuing success of our globally recognized conservation programs."

Further, they point out that by requesting donations to support their campaign, the Born Free Foundation is raising revenue on the basis of demonstrably false information. This is in direct contravention of the Charity Commissions Fundraising Code, which states "fundraising materials must not mislead anyone, or be likely to mislead anyone, either by leaving out information, or by being inaccurate or ambiguous or by exaggerating details."

So far, despite requests for updates, the complaint has gone unaddressed and the charity continues its activities. "Whilst UK charities no doubt have the right to campaign for the rights of African animals, this right cannot come at the expense of African people's rights to sustainably manage the resources on which our livelihoods rely or at the expense of the truth, science and fact. The Born Free Foundation's continued distortion of the facts jeopardizes conservation and our livelihoods and they should not be allowed to continue to campaign and raise money through disinformation campaigns."

It is disappointing that the Charity Commission has to date not acted upon our complaint in a manner which produces results," said Maxi Pia Louis, Chair of the Community Leaders Network.

Trophy hunting, though controversial to many, is recognized by the IUCN, on the basis of strong scientific support, as a conservation tool that "can—and does—positively contribute to conservation and local livelihoods in the face of intense competing pressures on wildlife habitat and widespread poaching."

This article was first published by The Namibian Economist on June 30 ([link to the original article](#)). The author, Dr Chris Brown, currently CEO of the Namibian Chamber of Environment, played a key

role in drafting the environmental clauses in the Namibian Constitution. He serves on several boards including that of Namibia's Sustainable Development Advisory Council. Dr Brown holds a PhD Zoology (Conservation biology), BSc Hons degree (Zoology) and a BSc degree (Zoology, Entomology, Biochemistry).

Banner Image supplied



Conservation versus profit: South Africa's 'unique' game offer a sobering lesson

By Adam Hart

READ TIME 10 MINUTES

Professor Hart's 2017 article on conservation controversies is as relevant today as it was back then. Be it in connection with the recent [wildlife policy initiatives](#) of the South African government, the

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integration of rural communities into wildlife policy and management, and the formation of conservation alliances (see Conservation Frontline Editor-in-Chief's opinion piece "Let's Forge Conservation Coalitions").

South Africa's wildlife is thriving. One of the reasons for this is that landowners can profit from animals living on their land. Wildlife can be hunted for meat and trophies as well as being used non-consumptively for ecotourism. Thousands of former cattle ranches are now profitable game farms, hunting reserves and ecotourism lodges making South Africa a conservation [success story](#).

But mixing profit and conservation is not simple. For example, a wildlife ranch generating profit from hunters must have animals that clients wish to hunt while a tourist lodge needs to stock species that are attractive and visible to those enjoying recreational game drives. Successful conservation requires a balanced, long-term approach but sometimes the goals of pursuing profit and long-term conservation don't always coincide.

One example of this is the market for "color variants"—unusually colored forms of particular species caused by rare mutations. Naturally occurring mutations causing color variations happen [in many animals](#). Rare color variants of hunted African species have been known for a long time. They include black and white varieties of impala, golden wildebeest and pure white varieties of springbok. Trophy hunters seeking novelty might pay more to hunt these unusually colored individuals.

The extraordinary spike, and then spectacular collapse, in the prices that these mutant color forms sold for in the game auctions of South Africa over the past decade or so provides a timely reminder that profit does not always sit comfortably with conservation. Using resources on color variant animals will divert from the conservation of other wildlife and can be detrimental.

The history

Over the past decade or so, color variants of a number of species including wildebeest, impala, zebra, blesbok, gemsbok and springbok began to be intensively bred by some game farmers, ultimately for the trophy hunting market.

In 2012, these rare varieties were estimated to represent only 1% of game in the country. Scarcity and the thought that hunters would pay handsomely for novel trophies led to a

confidence that there would be considerable future payoffs. As a result, prices escalated. Normal impala could be bought for [R1400](#), whereas black impala fetched [R600 000](#). These color variants were not yet being hunted—owners were focused on breeding lines and increasing numbers.

But over the next 2 years things changed. By 2014 rare game accounted for [16% of turnover](#) at game auctions with the average price for white impala rams reaching [R8.2million](#).

As prices continued to rise, [critics continued](#) to point out problems. Many believed it was putting profit before conservation.

They pointed out:

- the dangers inherent in intensively breeding animals from limited genetic stock, leading to the problems associated with inbreeding, including reduced viability and fertility;
- of offering captive bred animals to hunters, which many believe to be unethical and not “fair chase”;
- of diverting resources from other conservation as game farms focus on color variant animals to the detriment of other wildlife.

Despite naysayers, breeders bred and sold animals that commanded high prices throughout 2015. But talk of a bubble – when the price of an asset is based on past performance rather than actual value – was rife. Once potential buyers realize the asset is overvalued no one wants to buy it and prices collapse.

This is exactly what happened. At the beginning of 2016 prices started to fall and the devaluation continued spectacularly. Black impala rams now fetch perhaps [less than R10,000](#) (1.7% of 2012 price) and white impala have dropped to [R48,000](#) (0.5% of their 2014 peak value).

The problem seems to have been that demand didn't exist on the scale imagined. Hunters were simply not enthused about adding these new color variants to their trophy rooms. As a result,

breeders were only selling to other breeders and to game farmers, many of whom went on to become breeders themselves, exacerbating [the problem](#).

The problem with the profit motive

As one bubble bursts another seems to be inflating rapidly.



The R168-million buffalo bull

Advertisements for unusual color variant game can still be seen in game ranching publications. But more apparent in the last two years have been captive-bred buffalo, sable and roan. They are normally colored, but many have massive horns, a trait that is being bred for, and made even larger, by specialized game breeders. These animals are now regarded as the “fashionable” high-value game species and, as with color variants, their

prices are soaring. A buffalo bull went under the hammer for [R168 million](#) in 2016.

Inflated prices and controversy over hunting—especially following the killing of [Cecil of Lion in Zimbabwe](#)—make “greedy” wildlife ranchers obvious targets for those who oppose the use of wildlife for hunting.

But the profit-conservation balance isn’t necessarily any better in non-consumptive models. For example, baiting popular dive sites for sharks, crowding waterholes with cars, or pushing boats closer to bird colonies are but a few of the sharp ecotourism practices driven mainly by greed.

The system works, for now

For all the [faults of ecotourism](#) and wildlife ranching in South Africa, the truth is that allowing wildlife to pay its way does appear, at the moment, [to be working for conservation](#).



Game Viewing Tourist in Kenya's Mara. Christian Beier Photo

Conservation necessarily involves money and finding ways for humans and wildlife to live together. In many places, making money from wildlife through hunting and tourism satisfies both needs.

But it seems inevitable that some practitioners of "it pays it stays" will attempt to make wildlife pay more than its rent.

The color variant bubble [Ed.

Note: ... and the breeding of

lions for execution] is perhaps a timely lesson that models to conserve nature must also account for the greed in human nature.

*Adam Hart is an entomologist and professor of science and communications at the University of Gloucestershire, United Kingdom. Apart from research and teaching, he is a regular broadcaster for BBC Radio 4 and the BBC World Service, presenting documentaries on topics from trophy hunting to tree diseases. This [article](#) was first published in **The Conversation** on August 14, 2017.*

Banner Image: The price of rare colored animals like the Golden Wildebeest have fluctuated wildly. Shutterstock



A 'Dark Ages' of wildlife management descends on the West

By Todd Wilkinson and Tom Sadler

READ TIME 17 MINUTES

In part 2 of their dialogue, Wilkinson and Sadler discuss how state legislators [in the United States] are setting back wildlife conservation for grizzlies, wolves and other iconic animals.

In our polemical society, some topics are treated either as taboo or approached with the certainty that any discussion about them will erupt on social media into an uncivil exchange of name-calling. Hunting is one of those. We find dualism most unfortunate because it leaves little room to have a reasonable conversation about hunting as a tradition, its role in advancing wildlife conservation and examining such topics as predator control. By fostering a dialog about trophy hunting and hunting ethics, Mountain Journal is not staking out a position as

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being “anti-hunting,” nor when giving hunters a voice, is it failing to recognize the valid positions of animal rights and holding reverence for non-human animals as sentient beings. The second of a two-part conversation (part one [Hunters and Wildlife Conservation in America—Will wildlife conservation survive the evolution of outdoor recreation?](#)).

TODD WILKINSON: When we started this discussion in part one, we reminded readers that we were both raised in hunting cultures. Today, on a number of fronts, there is healthy disagreement about what “hunting” is and isn’t. In several states, legislatures are advancing bills that would ostensibly enlist “hunters”—which includes trappers—to help carry out predator annihilation.

TOM SADLER: Yes, it’s making news even back here in Washington, DC.

WILKINSON: Dr. Christopher Servheen, who served as national head of grizzly recovery for the US Fish and Wildlife Service and lives in Montana, [wrote in an op ed piece for Mountain Journal](#). Now, as a hunter and vice president of the Montana Wildlife Federation, he asserted that states are regenerating in their attitudes toward grizzlies, wolves, black bears and mountain lions. He noted how one bill, among several controversial pieces of legislation in Montana, would prohibit grizzlies from being captured and relocated back to safety if they wander outside a designated conservation zone. He also called attention to another bill that would allow any person, if they claim their livestock or the safety of themselves or their pets is threatened, could shoot a grizzly on sight. Servheen wrote that what's happening is undermining 40 years of conservation efforts, positive gains in public attitudes and co-existence.

SADLER: You’ve also mentioned to me legislation in Montana and Idaho pertaining to wolves as well as the recent “hunt” of wolves in Wisconsin that, some say, has brought a black eye to hunters.

WILKINSON: [In Wisconsin](#), 216 wolves were killed by hunters and trappers in less than 60 hours—82 percent above the state's quota. Many hunters chased down wolves using dogs. State wildlife officials there admitted they didn't manage the hunt very well.

SADLER: What's happening out West?

WILKINSON: There is legislation in Montana that would allow citizens to catch wolves in leghold traps and snares without limit, and it would bring heightened risk for killing other “non-target” species such as grizzlies and black bears, wolverines, lynx and even people’s pets. Same thing in Idaho. Wolves are being targeted for local eradication not based on any science or any factual proof they pose a serious threat to livestock or game populations. No other species ever recovered under the Endangered Species Act has ever been treated this way and it’s what led to the species being listed in 1975. States still seem to resent the fact they were compelled to bring species like wolves and grizzlies back from the brink.



A fair question about "fair chase hunting." The two paintings above by French artist Alexandre-Francois Desportes are titled "The Stag Hunt" (left) and "The Wolf Hunt" (right). Question: why is it considered unethical in the US for deer and elk to be chased down by hounds but not wolves, bears and mountain lions? In Wisconsin's recent controversial wolf hunt many lobos were run down by dogs and in Montana there is a new bill that would legalize black bear hunting with dogs, which until this year has been banned. In Montana and Wyoming, it is also legal to chase down and kill coyotes using snowmobiles.

SADLER: I think Mr. Servheen has also referenced hound hunting, which has not been legal for chasing bears in Montana.

WILKINSON: That’s right. I just had another interview with Chris and what he said will appear in a new MoJo story. The basic gist is this: Using hounds to chase and kill black bears has long been viewed as violating fair chase guidelines in Montana and problematic for a number of reasons. For one, as Servheen noted, it’s a really, really bad idea in places where grizzlies exist, especially mothers with cubs. Grizzlies don’t tree and they will respond very aggressively to feeling cornered. What happens if a houndsman decides that his life or property—i.e. his dogs—are threatened by a grizzly that is only defending itself from an attack provoked by dogs? Will

the bear then be shot and would it be legally defensible? Servheen says several different pieces of legislation runs counter to science, wildlife conservation and common sense.

SADLER: What's going on in Wyoming?

WILKINSON: It's timely you should mention Wyoming. Wyoming for years has been plotting a strategy to knock down wolf populations to the absolute minimum to comply with low numeric federal delisting thresholds that have little to do with the spirit of recovering a species. By its own rhetoric which I've been following as a journalist since the mid-1980s, Wyoming claims that it is a proud collaborator in recovering imperiled species yet the moment that the hand off from the federal government into state hands occurs, its politicians advocate for ways to reduce populations. I know some biologists with Wyoming Game and Fish, the US Fish and Wildlife Service and Montana Fish Wildlife and Parks who are frustrated. With state employees in Wyoming and Montana, they know that if they say anything, it will negatively affect their careers. They are embarrassed and appalled.

SADLER: Can you give me an example of how Wyoming's position toward wolves is playing out on the ground?

WILKINSON: Already in Wyoming, in more than 80 percent of the state beyond the tiny northwest corner where Yellowstone and Grand Teton reside, a person can kill a wolf, again a species recently recovered via the Endangered Species Act, every day of the year, 24 hours a day, by any means including lethal techniques that would otherwise arguably violate fair chase and humane treatment of animals—such as poisoning animals with ultra-toxic chemicals, burning animals in dens and gunning them from the sky. Wolves are treated like rats. Objectively, that doesn't seem to be managing an iconic animal, which draws tourists from around to the world to parks like Yellowstone and Grand Teton, with reverence nor be in accordance with ethics touted by the hunting organization Boone & Crockett.

SADLER: I seem to remember an in-depth report in Mountain Journal about ethics. It was a story that got circulated nationally.

WILKINSON: Yes, we took a deep dive the fact that in Rocky Mountain states it is legal to [chase down coyotes with snowmobiles](#) and actually run them over to kill them. It happens every winter and it, [like predator-killing contests](#), are touted as great sport that brings hunters together and teaches young people how to hunt. After our report, there was national outrage

and five different bills that would outlaw running down coyotes with snowmobiles were advanced in both the Montana and Wyoming legislatures. Lawmakers rejected those bills and, in some cases, wouldn't even give them a fair airing in subcommittees and committees. The message sent to the public is that such things are part of local culture and perfectly acceptable.

SADLER: I read the story.

WILKINSON: The vast majority of people I interviewed were lifelong hunters, not anti-hunters. Three of them had been chairs of their state fish and game commissions as well as a spokesperson for Boone & Crockett, another was the late legendary hunter-conservationist Jim Posewitz, another was former Montana state senator and wolf biologist Mike Phillips and another was a rancher outside Pinedale, Wyoming who publicly condemned both running down coyotes with snowmobiles and predator-killing derbies.

SADLER: Wow. It sounds like this year, there are plenty of bills involving predators in the Northern Rockies.

WILKINSON: More broadly, wildlife conservationists and policy people say these maneuverings raise a lot of questions about "rural cultural attitudes" toward predators being carried forward by lawmakers that aren't based on facts. And they reflect poorly on the "traditions" of hunting, and even the purpose of the Endangered Species Act. Do we recover species so that states can turn immediately around and try to re-eradicate them? States have claimed they want to be partners in promoting permanent species recovery but these bills arguably call not only that into question but they make the case, Servheen says, why states cannot be trusted after delisting occurs. He says "the Dark Ages" of wildlife management have returned. Let me pose a rhetorical inquiry to you, Tom, a guy who regularly mixes with some of the most respected sportsmen and sportswomen in the country:

If elk and mule deer are supposed to be treated with utmost respect, why not wolves, coyotes and even prairie dogs —the latter that, as native species, support prairie ecosystems and the survival of dozens of other species, including critically imperiled black-footed ferrets? Is what's happening in the West and in Wisconsin, especially with predators, sound like ethical engagement and treatment of species beloved by a large percentage of the American public?

SADLER: Nope. What you describe is not "hunting" in my book. Here is my problem with stuff like that when it is called hunting. It tarnishes the word "hunt" and detracts [from the notion of fair chase](#). I also think the things like you describe, when couched as hunting, gives ammunition

to folks who want to see hunting in all forms done away with. That is not an outcome those of us who hunt, should want to see happen. For me it is respect for the animal.

WILKINSON: You say it's "not hunting" yet many who partake in those practices identify as hunters; they believe that what they are doing is hunting and people in their community believe it's hunting, too.

SADLER: And that's a problem.

WILKINSON: What does respect for the animal look like?



There is a lot of information in this poster—confirmed by simple fact-checking—that is grossly misleading. In fact, it would take a long article explaining them all.

The poster announces bounties paid to kill wolves in Idaho. Now the Montana legislature is proposing to bring back a de-facto bounty on wolves in that state, too.

SADLER: I've always been guided by this part of the Boone and Crockett Clubs statement on fair chase, "Ethical decisions in hunting, however, ultimately rest with the individual in what feels right or wrong, and what technologies or methods are acceptable or unacceptable for them to be successful."

WILKINSON: Okay, but to play Devil's advocate, arguing that ethics comes down to "what feels right or wrong" for individual hunters in the moment seems to be ambiguous and dodgy. I could claim that it's perfectly acceptable to aerial gun predators from airplanes and you might not. Most people, for instance, don't poach wildlife but anti-poaching laws are in place to punish those who have no respect for ethics or the reputation of hunting. Just because something is legal doesn't make it ethically or morally defensible, does it?

SADLER: Your point is well taken. What is critical in the "legal" vs "defensible" construct you mention is personal responsibility. I hope we as humans are better than carrying out and

celebrating cruel or inhumane treatment of animals, any animal, and yes I know that is wishful thinking on my part. There may be situations to kill animals for legitimate reasons, but when respect for the animal is lost there is going to be blowback.

WILKINSON: I hear you when you say it gives hunting a bad name. Why, then, I ask, won't both legislators who hunt, and leaders of state fish and game agencies, who claim they are protecting the reputation and integrity of hunting, come out and publicly condemn running down wildlife with snowmobiles and legislation that allows essentially vigilante removal of grizzlies and wolves to happen?

SADLER: Tough question to answer because I don't know the situation on the ground or what kinds of conversations are happening among legislators. That said, I hope they recognize that public blowback on unethical, inhumane and cruel treatment of any animal is going to happen and things can get unpleasant. I've been around long enough to know that political realities likely come into play. But most hunters I know bend their knee to fair chase and find unethical, inhumane and cruel an anathema. At some point hunters and the public will become vocal enough to demand changes and the political calculus may change.

WILKINSON: You've noted that Boone & Crockett in its guidelines, which are considered the holy grail for hunters, explicitly suggests that wildlife deserves to be hunted in a way that does not result in the infliction of excessive pain, suffering and cruelty yet when we look on social media, we can find plenty of videos in which blood sport is glorified and there are commercial sponsors of those videos. Essentially, manufacturers of hunting products are using bloodsport to generate eyeballs and sales. Social media has been a game changer. It has created not only a culture of exhibitionists but voyeurs. It's not like the hunting culture we grew up in.

SADLER: We should have another discussion about social media but you raise a critical point. The new culture of exhibitionists and voyeurs is especially troubling. When I think of respect for the animal, I'm reminded of Aldo Leopold's "[fierce green fire](#)." It's about killing the last wild wolf and my reading it changed me years ago. Leopold wrote: "We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes – something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I

sensed that neither the wolf nor the mountain agreed with such a view.” Hunters, legislators and game commissions would be well advised to think like a mountain.

WILKINSON: What about target shooting of prairie dogs or just killing coyotes for fun, or wildlife killing contests that offer prizes for those who kill the most? [A growing number of states have banned coyote killing contests](#), with biologists in those states saying they serve no noble purpose. What's your take?

SADLER: Mark me down as against those practices. It's hard to see respect for the animal in those situations. There is nothing sporting about it and it's a perversion to call it hunting. It goes against the very nature of what I said before about respect for the animals and ethical, fair chase hunting.



Origin of "the teddy bear": one is that some friends of Roosevelt clubbed a semi-tame black bear, tied it to a tree and encouraged TR to shoot it. He refused, saying he would not partake in such pathetic conduct. Cartoon done by Clifford Berryman in *The Washington Post* in 1902.

WILKINSON: Do you think Teddy Roosevelt, the President and patron saint sportsman who had an anti-predator mindset, would have, had he lived longer, embraced the ecological thinking of Aldo Leopold in recognizing the value of all species, including predators such as wolves, grizzlies, and mountain lions, etc?

SADLER: Oh man, anything I say is pure speculation. That said, I want to believe so, based on my reading of their writings and speeches. Here is one example to buttress my contention and we'll let readers guess who wrote it: "We are, as a whole, still in that low state of civilization where we do not understand that it is also vandalism wantonly to destroy or to permit the destruction of what is beautiful in nature, whether it be a cliff, a forest, or a species of mammal or bird. Here in the United States we turn our rivers

and streams into sewers and dumping-grounds, we pollute the air, we destroy forests, and exterminate fishes, birds and mammals—not to speak of vulgarizing charming landscapes with hideous advertisements. But at last it looks as if our people were awakening."

WILKINSON: I don't know. Who wrote it?

SADLER: It was TR making the observation more than a century ago. It appeared in the book *Our Vanishing Wildlife* In 1913. Leopold was then 26 and Roosevelt was 55. Leopold had an impressive grasp of the natural world.

WILKINSON: Who would you consider a modern exemplar of someone who was a hunter and angler and really embraced the same kind of Leopoldian thinking and wasn't afraid to tout it?

SADLER: This may be a leap here, but I've always considered my late friend Jim Range as a latter-day TR who also appreciated Leopold and encouraged folks to read [A Sand County Almanac](#). I'm sure I'm not the only one who thinks of Jim that way either. He was a unique individual who could talk across boundaries. He influenced lawmakers and many others. No one can question his dedication to ethical hunting and fishing. It defined him. But when people talk about Range in action in Washington, DC it is his dedication to conservation of game and non-game species that people talk about. I don't think anyone else comes close. My favorite memory of Jim, bar none, and he was the best-man in my wedding, he said to me at dinner, "Tommy we have to protect the wild things. If we don't do it, it won't get done."

WILKINSON: For those who have never heard of Jim Range, why does he matter?

SADLER: Because anyone who hunts and fishes can emulate Jim Range. Folks like the late Jim Posewitz was in Montana. There's Range's contemporaries like Rollie Sparrowe in Wyoming, and Craig Mathews in Montana. There are some slightly younger people like Randy Newberg and Land Tawney who see themselves as connectors trying to unite people around values and a common love for wildlife. And they are trying to help diversify the appeal of hunting among People of Color and those who see eating game meat as a healthy, locally-grown alternative to other meat products. I know that MoJo has interviewed them and others like former Yellowstone superintendent Mike Finley who headed the Turner Foundation and Mike Sutton who has had a number of high-ranking positions in wildlife conservation.

WILKINSON: What made Range affective?

SADLER: He was a skilled bipartisan policy and political genius with an extraordinary network of friends and contacts. His fingerprints are all over the nation's conservation laws, including the Clean Air Act and Clean Water Act. His championing of conservation tax incentives earned

him a profile in Time magazine. He ably chaired the Theodore Roosevelt Conservation Partnership's board of directors pouring his enormous energy into its resurrection. He served with distinction and candor on the boards of Trout Unlimited, the Recreational Boating and Fishing Foundation, the American Sportfishing Association, Ducks Unlimited, the American Bird Conservancy, the Pacific Forest Trust, the Valles Caldera Trust and the Yellowstone Park Foundation, now Yellowstone Forever.



A gathering at Tom Sadler's wedding party in the Madison Valley of Montana at Three Dollar Bridge. Left to right: son of the bride Matt Henderson, best man the late Jim Range, Sadler and angler-conservationist Craig Mathews who officiated the ceremony. Along with the late Alex Diekmann of Trust for Public Land, they also were major players involved with the Three Dollar Bridge fishing access and riparian corridor protection project. Photo courtesy Tom Sadler

WILKINSON: We opened this conversation with a reference to the fact that people, because of their own attitudes, are unable to talk respectfully with each other and can't get to the place where they agree to disagree yet still be united in a larger common cause like land protection. Range spent a lot of time in Montana bringing people together and sitting around a fire with a libation in hand.

Respect science, respect nature, respect each other.

SADLER: Jim Range could and was willing to talk with anyone, from animal rights activists to trophy hunters. He was disarming by being charming and respectful of different points of view. Range's attitude could be distilled down succinctly. He believed that wildlife, all wildlife, is deserving of compassionate stewardship, and that what's best for the natural world in the face of human development is also best for us. Well-intentioned efforts that did that he was pretty much in favor of and things that ran counter he was pretty much opposed.

WILKINSON: Okay, we've covered a lot of ground. Final question: Why is this stuff so difficult to talk about? Why aren't conversations being led by our elected officials and even conservation leaders? Why are people so timid to discuss respect for life, ethics and morals when it comes to something we all care about—wildlife?

SADLER: This is why I think MoJo is important, in tackling subjects for a larger general readership where most media and conservation organizations are hesitant or not skilled enough to go. I look at it this way: Everything we do as adults is a teaching moment for young people and where hunting is concerned the future of hunting lies in the balance with the public perception of hunting we are creating. I would encourage those who are openly promoting hatred toward this country has invested a lot of time and effort to recover to reconsider what the consequences of their actions will be in the court of public opinion. Because it won't be good.

I would ask today's hunters to honestly reflect and ask themselves, "what are we teaching our kids?" If they don't see reverence and respect, but instead blood lust, trigger-itch and wanton waste then that is what they will learn. That is no way to guarantee a future for hunting and fishing.

Todd Wilkinson's note: For further reading, you can [click here](#) for the story about Aldo Leopold; [and here](#) for an investigative story about hunting ethics.

Republished with permission from the March 11, 2021 edition of Mountain Journal. The first part of the conversation between Wilkinson and Sadler was [published](#) in our April 15 issue.

Banner Image: Grizzly bears. Thomas D. Mangelsen (www.mangelsen.com) photo.



African Professional Hunters Association

NEC TIMOR NEC TEMERITAS

"neither fear nor foolhardiness".

An Open Letter by the African Professional Hunters' Association

By Mike Angelides, President of APHA

READ TIME 3 MINUTES

In response to several countries discussing trophy import bans, the African Professional Hunters Association addresses this open letter to the legislators and politicians in the Global North who—with their legislative power—will be deciding the fate of Africa's wild lands and the continent's rich wildlife.

Africa, a continent that is lavishly gifted with various natural resources that can support the livelihoods of many Africans. These natural resources drive national and regional economic development, and include:

- Freshwater, marine and coastal ecosystems.
- Forests, wetlands, rangelands, arable land, and mountains.
- Wildlife
- Minerals and energy resources

Wildlife is one of the continent's most renewable and diverse resources, able to be utilized in both consumptive and non-consumptive ways. In order to flourish, however, it requires natural habitat that is protected and, ideally, where the primary land use is for supporting biodiversity.

Respect science, respect nature, respect each other.

Many national parks across Africa have been created for this purpose and to host photo tourists. Since many people desire to see Africa's wild animals, photo tourism can be a very lucrative industry, a massive foreign exchange earner for governments and private operators on these lands. A portion of the revenue generated must, of course, be put back into these areas to continue to protect them as wildlife lands. Photo tourism is typically a high-volume industry, however, so significant investment is also necessary for funding the required visitor infrastructure and services as well.

But Africa has more wildlife habitat than the photo tourism market can support. And many of these wildlands are too remote, not scenic enough, lack infrastructure, or are habitats too difficult to view wildlife reliably in to be suitable for photo tourism. Yet they still hold the same valuable, natural and renewable resource, which is wildlife. Hunting tourists financially support these marginal areas by legally and sustainably harvesting a select number of animals.

Much like the photo tourist industry, the money generated from the tourist hunting industry is put back into these hunting areas to conserve wildlife so that these lands can continue to earn foreign exchange. But unlike the majority of photographic operators and lodges, hunting operators also directly, individually, conserve and protect the areas where they operate.

Hunting tourism differs also in that it is a lower volume model, requiring less infrastructure and visitor services, resulting in fewer impacts on the land. Despite the merits and utilities of hunting tourism as a scientifically proven conservation model, however, there are people who campaign to stop trophy hunting based largely on their own emotional responses and personal preferences. Only African countries themselves can ever directly ban hunting, so these critics adopt indirect tactics instead. They advocate for a ban on trophy imports so that hunters will not want to go hunting, thus disincentivizing hunting outfitters as well. If these misguided campaigns succeed, who will then fund the conservation of wildlife and habitat in the areas that will be vacated by the hunters?

Africa has a tried and tested conservation model that includes hunting. Any bans of legally hunted animal trophies will have catastrophic effects on this model of conservation, tragically erasing decades of careful and sustainable management. Management and land protection that has permitted wildlife populations to remain viable so that both photo and hunting tourism programs can effectively operate.

Although supporters of import bans claim such legislation will save African animals, these bans will ultimately achieve the exact opposite, resulting in unprecedented rates of habitat loss, with consequent wildlife depletion. We who are on the ground, fully invested in Africa, know what will happen when vast areas are vacated by hunting operators. When wildlife does not pay, it does not stay. These currently massive areas of intact wildlife habitat, irreplaceable reservoirs of biodiversity that currently encompass more land mass than national parks in many countries, will be encroached upon and depleted by logging, farming, livestock grazing and general human settlement expansion. Without hunting areas acting as buffer zones for adjacent national parks, the photo tourism industry and wildlife utilizing park lands will suffer greatly as well. The ultimate effect will be undeniably and irreversibly devastating to both wildlife and habitats. It is unimaginable that anyone who claims to love Africa's animals or to be concerned about conservation would not only wish to see that change, but would actively campaign for it.

Mike Angelides is the current president of the African Professional Hunters' Association APHA—an association of like-minded professional hunters who subscribe to a code of ethics, a code of conduct, and the promotion of sustainable use of wildlife and wildlife habitat.



Scimitar Horned Oryx—Five years on

By John Newby

READ TIME 2 MINUTES

Scimitar-horned oryx once occurred across the sub-desert belt of Africa. Now extinct in the wild due to a lethal combination of overhunting, drought and habitat loss, its reintroduction in Chad provides hope.

On March 14, 2016, twenty-five scimitar-horned oryx set foot on Chadian soil after an absence of almost 40 years. Welcomed home like long-lost sons and daughters, the oryxs' return was the fruit of cooperation between many players working hand in hand under the leadership of the Government of Chad and the Environment Agency Abu Dhabi.

Respect science, respect nature, respect each other.

Five years on and eight shipments later, a further 200 oryx have joined the initial twenty-five. Today, more than 370 oryx roam free in the Ouadi Rimé-Ouadi Achim Game Reserve, edging us closer and closer to our initial milestone of 500 breeding adults. Ultimately, we want to see so many healthy and secure oryx that their conservation status is assessed by the Red List and reclassified from Extinct in the Wild to a lower category of threat.

Of the initial 25 founders, at least 16 and possibly 19 are still alive. One female has produced five calves, and others have performed similarly, producing a total of 42 calves, of which most have survived.

Conservation of wildlife and the restoration of extinct or critically endangered species is not a simple, one-off undertaking but a constant battle requiring major and permanent commitment. Overhunting saw the oryx disappear from Africa in the 1980s but there will always be new threats and new challenges moving forwards. Bushfire is now a major concern, something that seldom occurred in the past. Solid partnership has so far enabled us to achieve some truly remarkable results and it is this same spirit of working together that will ensure the growth and prosperity of the oryx population and its struggle back from the brink.

John Newby is the founding CEO of the [Sahara Conservation Fund SCF](#). After retiring from this function, he continues serving as senior adviser. SCF works to conserve the wildlife, habitats and other natural resources of the Sahara and its bordering Sahelian grasslands.

Banner Image: “Born in Freedom” Sahara Conservation Fund photo.



Positive Outlook for the Southern Bald Ibis

By Fritz Ganz

READ TIME 7 MINUTES

The Southern Bald Ibis Species Champion Project of BirdLife South Africa includes the monitoring of breeding colonies, an awareness program at schools within the bird's core range, and the artificial nesting project in Ingula Nature Reserve.

Bald ibises belong to the genus *Geronticus*, derived from the Greek word *gérontos* meaning old man—as reference to their bald heads. The non-migratory Southern Bald Ibis (*Geronticus calvus*) is endemic to a restricted region in southeastern Africa. The Southern Bald Ibis' most notable feature is the clownish red skull cap, distinguishing it from its very close cousin, *Geronticus eremita*, the Northern Bald Ibis, which looks like an aging rockstar with a mohawk-style neck crest of elongated feathers (Conservation Frontlines will bring you a story on the Northern Bald Ibis soon).

Respect science, respect nature, respect each other.

The Southern Bald Ibis core distribution range is located mainly in South Africa (from Limpopo, the northeastern Free State, Mpumalanga, to Kwazulu-Natal), although a significant part extends into Lesotho, and some occur in Swaziland. (Locally it's known as *Kalkoenibis* in Afrikaans; *Umcwangele* in Xhosa; *uNkondlo* in Zulu; *Lesuhla-ngeto*, *Mokhotlo* in South Sotho.)



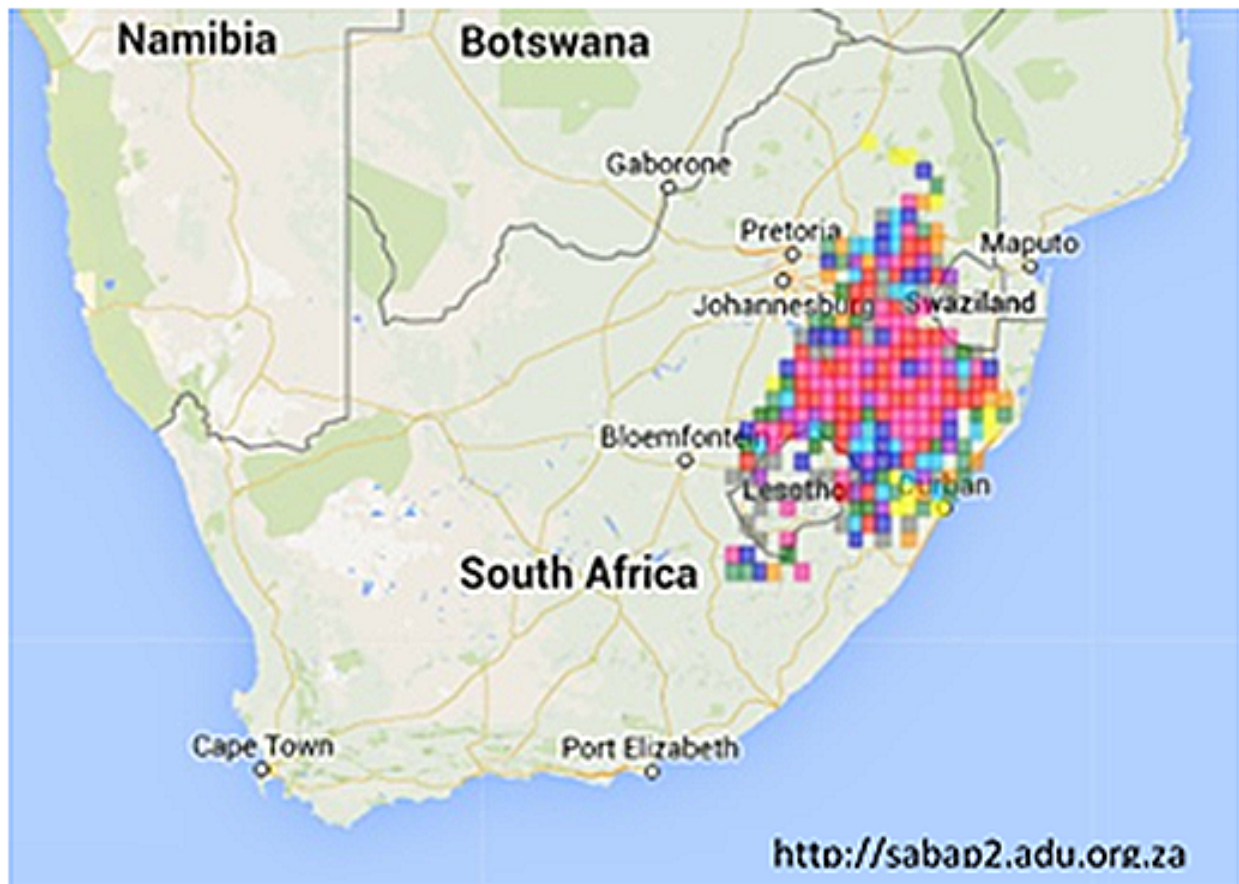
Southern Bald Ibis (©Richard Flack photo, www.theflacks.co.za).

As already mentioned, the distinguishing feature in mature Southern Bald Ibis is the clearly visible crown—naked, bright red and domed. The rest of the head and upper neck, also naked, are whitish-beige. The long, downward curving bill is dull-red; the eyes are reddish. In direct sunlight, the dark plumage shines glossy green-blue, with a maroon-copper iridescence on the shoulder. The birds' mass ranges from 1 to 1.3 kilograms; the length is between 70 and 80 centimeters, and the wingspan between 125 and 135 centimeters.

Southern Bald Ibis favor grasslands in high rainfall (>700mm p.a.) and high-altitude areas (>1200mm a.s.l.), generally characterized by sour alpine vegetation. They forage on a suite of habitats including pastures, croplands, irrigated fields, and ploughed lands. Using their purpose-built beak, the birds probe the earth for, and feed on, insects, snails, worms, frogs, and

even small birds (stomach contents of young chicks are reported to contain ca. 33% maize-stalk borers—hence the species benefits maize farmers).

The Southern Bald Ibis population is estimated at 6,592 individuals, with a declining trend. About half are breeding individuals, occupying ca. 245 nesting colonies (about a third of historical nesting sites are no longer utilized, due to the decline in breeding adults). The species is classified “Vulnerable” by [IUCN](#), and listed in CITES App II.



Current recorded distribution of the Southern Bald Ibis from recorded data in the Second Southern African Bird Atlas Project (BirdLife SA)

Throughout its 257,000km² breeding range, the major concern is loss of wetland habitat through degradation and fragmentation, intensive crop farming, afforestation, invasive flora encroachment, open cast mining and expansion of human settlements. Since 1990 available suitable habitat has declined by 14.3%; by the year 2050, climate change will lead to additional habitat shrinkage of ca. 34.4%.

Another significant threat is the illegal harvesting of eggs and young chicks for subsistence, traditional medicine, and ceremonial purposes. The disturbance caused by removal of eggs and chicks may lead to breeding sites being abandoned over time.

As a gregarious species, Southern Bald Ibis breed communally; colonies—two to 100 nests per site—are usually located on cliff ledges, in potholes on mountain slopes, along riverine gorges, or on a waterfall face. The breeding season lasts from July to December, with a peak in August and September (often correlating with burnt grassland availability).



Typical Southern Bald Ibis nest structure on a cliff ledge (BirdLife SA photo)

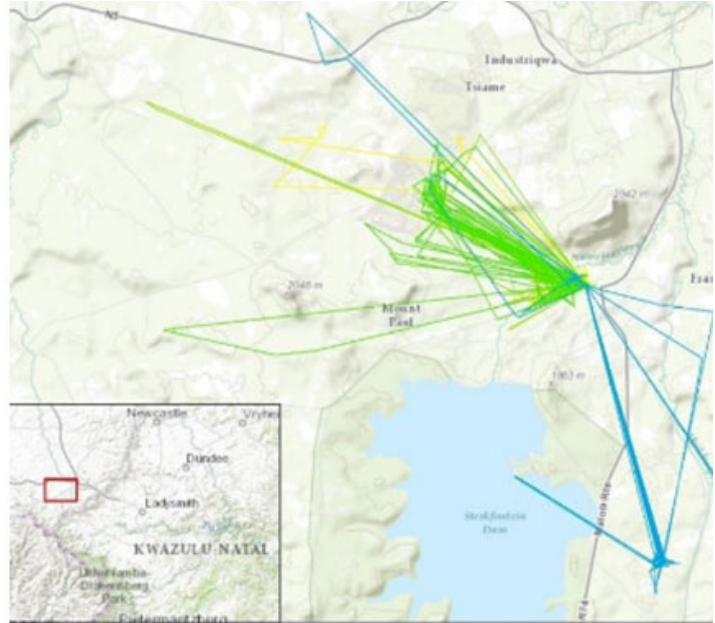
The clutch size varies between 1-3 eggs. The survival of multiple fledglings from the same nest is rare (apart from predation by white-necked raven and jackal buzzard, substantial losses are recorded during very wet years, when breeding colonies are flooded or washed out—the very reason why the birds choose cliff ledges for nesting). The South African fledgling survival rate (2004-2010) across 21 colonies was as low as 0.47.

Southern Bald Ibis Conservation Program

BirdLife SA initiated a long-term Southern Bald Ibis study for South Africa, which covered work on distribution range, numbers, survival rates of chicks/juveniles, breeding ecology and reproductive success, as well as trends of decline or expansion.



GSM tracking device on a juvenile Southern Bald Ibis (BirdLife SA photo)



Initial tracking data captured from a juvenile Southern Bald Ibis chick tagged in January 2014 (BirdLife SA)

Eskom, the national electricity supplier, supported this conservation work through various initiatives, including a satellite tracking project. The latter served to determine the movement patterns of Southern Bald Ibis across seasons, where and how far these birds fly for foraging, and to what extent they return to natal sites to roost and/or nest. In 2014, two juvenile birds were fitted with satellite trackers. The tracking data shed light on their behavior, life history and fine scale habitat requirements. One tracking device failed after four months, whereas the second one provided consistent data for 30 months.

In 2016, BirdLife SA published the national Southern Bald Ibis [action plan](#), identifying threats and constraints, including an action matrix categorized into research; monitoring; habitat conservation; and education and awareness.

Among the action plan's objectives are various facets including:

Niche Modelling

This involves habitat suitability analyses for the entire range (available habitat under current land use practices in South Africa, Lesotho and Swaziland), as well as potential impact of climate change (including the greenhouse gas concentration trajectory). Known environmental constraints were factored in (elevation, slope, rainfall, eco region/biome, and fine scale land cover data).

The results highlight the available habitat to guide surveys for potential new breeding sites. An eastward shift of suitable habitat, and a contraction of available habitat along the western part of the current range was noted. The shift in suitable habitat also identified areas that may remain suitable under changing climatic conditions, and therefore, should be prioritized for conservation and stewardship initiatives.

Home Range, habitat use and foraging dynamics

This investigation used cellular network tracking technology on the two juveniles mentioned earlier. Data generated through satellite trackers yield insights into the threats from habitat-use and foraging (i.e., foraging in pesticide-rich environments, possible human interactions, etc.). Home range size estimates and live movement data across seasons and habitats may also show the degree of migration—actual or potential—across international boundaries.

Monitoring of breeding colonies

BirdLife SA supporters and citizen scientists were involved in a largescale monitoring program between 2010 and 2015. Surveys of significant breeding colonies, and annual breeding assessments were made in cooperation with local Bird Clubs. Data for 224 breeding colonies across South Africa and Lesotho have now been collated, and are included in the Southern Bald Ibis database. These data are analyzed periodically to determine any changes in breeding success or distribution. For the areas which are still unmonitored (or unknown to the project), citizen scientists should relay information to BirdLife SA's Carina Pienaar (she's driving the project since 2004). Very important is also the recruitment of rural community members living near to breeding cliffs (this will rise awareness and buy-in at grass-root levels).

Artificial breeding

After realizing that the waterfall home of a substantial Southern Bald Ibis breeding colony on the Ingula Pumped Storage Scheme (a pumped-storage power station on the Drakensberg escarpment in Kwazulu-Natal, South Africa) would be inundated with the construction of the Bedford Dam, a special relocation program was implemented. Eskom, recognizing the

importance of this breeding colony, supported the creation of an artificial nesting ledge in 2010—a first for this species.



The artificial breeding site for Southern Bald Ibises on the Bedford Dam in Ingula Nature Reserve (BirdLife SA photos)

The original nesting site was flooded with the partial filling of the Bedford Reservoir in June 2015 (during the breeding season). Fortunately, the birds began use the artificial nest holes above the rock ledges. Since relocation, four successful fledglings have been recorded. Annual monitoring tests the effectiveness of this intervention and provides invaluable lessons regarding future development of artificial nesting ledges.

At the original breeding site (prior to flooding, between 2004 and 2010) breeding success low, with the national fledgling success being 88% higher. The 2008 to 2010 seasons saw breeding success rates of 0.25, 0.29 and 0.22 (lower survival rates were attributed to predation as well as mortalities associated with severe rainfall and nest flooding). The number of nests varied between seven and nine. The fledgling success rates in 2014 and 2015, however, stood at 0.33 and 0.35.

In 2019 up to 30 adults used the artificial site for roosting. A sudden increase in breeding activity was noted in 2020, with nine nests in total, and 13 chicks reaching fledging age. Three of the nests were located in the artificial potholes. This success is noteworthy for several reasons: after the previous four breeding seasons had consistently produced four chicks, it was thought that the site's capacity had been reached. And although the potholes apparently provided valuable shelter from the elements for adults and fledglings, their design seemed to lack certain characteristics that would have made them suitable for nesting. Both assumptions were proved wrong. Nests in the potholes produced four of the 13 chicks that fledged.

In 2020, a research team lead by Dr Kyle Lloyd was able to ring 10 of the 13 juveniles. Two chicks received new GSM tracking devices, designed and fitted by Craig Natrass. These juveniles will form part of a study of breeding success, the post-fledging spatial distribution and movement, habitat preference and use.

The BirdLife SA Southern Bald Ibis project ensures a new lease on life for this very special and iconic bird of the high grassland of Southern Africa.

Fritz Ganz, an accountant by profession, has a passion for of ethical fair chase hunting and conservation. Fritz freelances as author of stories on hunting and conservation related topics. He's a member of Custodians of Professional Hunting and Conservation-South Africa CPHC-SA, and lives in Derdepoort near Pretoria.

Banner Image: Flying Southern Bald Ibis (Photo© by Richard Flack—www.theflacks.co.za)



Student-led Initiative in Montana makes Hunting More Accessible for Peers

By Jonathan Karlen

READ TIME 11 ½ MINUTES

Montana recently passed a law to make hunting accessible to thousands of college students. University of Montana Boone and Crockett Fellow Jonathan Karlen describes transforming an idea into a law.

Respect science, respect nature, respect each other.

Fall at the University of Montana brings a buzz of excitement. As snow begins to whiten the Rocky Mountains that ring the campus in the small city of Missoula, you can sense that the opening day of deer and elk hunting season is approaching. Conversations turn to plans for hunting trips and recipes for wild game. When the opening day of rifle season arrives, students' groans about waking for early classes give way to sunrise hunts. On weekends, come sun, rain, or snow, students pile into cars and pickup trucks bound for remote parts of Montana's 30 million acres of public land. Mondays mean sharing adventures from the field.

However, thousands of college students across Montana were, until very recently, unable to hunt and fish with their classmates. Their status as non-resident (out-of-state) students made hunting and fishing licenses prohibitively expensive.

I became aware of how it affected my friends and classmates when I served as President of the University of Montana Student Chapter of The Wildlife Society.

At our meetings, guest speakers discussed the North American Model of Conservation and how wildlife management and conservation activities are funded primarily through hunting license sales and a tax on hunting equipment.

When students asked me about learning to hunt, there were several resources to point to. My academic advisor and the Boone and Crockett Professor of Wildlife Conservation, Dr. Joshua Millspough, teaches a hands-on class where students can earn credit to learn about hunting and wildlife management; and student clubs facilitate hunting mentorship programs, gear swaps, range days, and carpools. Almost all practical barriers for an aspiring hunter were mitigated.

But when non-resident students, who comprise more than half of the university's Wildlife Biology Program, would learn the cost of a hunting license, they no longer viewed learning to hunt as an attainable goal.

For Montana's several thousand non-resident students, the fee to hunt a buck on public land was \$338 per season, nearly ten times more than the cost to their resident peers. The big game combination license (deer, elk, upland bird, and fishing) cost non-resident students \$555. By contrast, their resident classmates could purchase a license to hunt the same species for only \$82, including fees. Non-resident students were effectively priced out of hunting. It seemed unfair. While non-resident students paid prohibitively high license rates, they spent hundreds of millions of dollars in Montana and lived in the state nearly year-around for several years.

For non-resident students, Montana becomes home. They work and volunteer in Montana communities and usually cannot travel to their technical state of residence during the hunting season. As a result, if they can't hunt in Montana, they can't hunt at all. Many students are unable to become residents of Montana for practical reasons, such as the potential to lose residency-based financial aid.

The Montana State Legislature sets fees for hunting licenses. Although I was learning about policy and politics in some of my classes, I hadn't seen the legislative "sausage-making process" up close. I was in for a few surprises.

The state capitol building, in the town of Helena, lies on the eastern edge of the Rockies, with mountains visible in every direction. Inside the capitol building, a visitor may think they're in a museum of the American West. Around every corner, paintings and sculptures commemorate pivotal events in Montana history. The first time that Dr. Millspough, Tony Schoonen (Boone and Crockett Club CEO), and I made the two-hour drive to Helena, I had little idea of what to expect.

It was January, and lawmakers, lobbyists, and journalists had descended on the capitol for the start of the 90-day legislative session. That gave us four months to turn our proposal into a law. Since the legislature meets only once every two years, this would be our one opportunity to succeed.

We realized we needed to present lawmakers with a compelling, long-term vision. Our experience at the University of Montana, seeing how students of all backgrounds were interested in hunting, inspired us to share a vision where future leaders in conservation, business, education, and government were conversant in hunting and wildlife management. A vision where fewer voters would be swayed by misinformation in the era of ballot-box biology.

To prepare for our first day in the capitol, I had compiled research about hunting licenses in Montana — legislative history, financial aspects of license policies, and prior attempts to enact similar change. The facts alone told a compelling story. Between 2010 and 2015, non-resident students could purchase a big game combination license for \$70, the same price as a resident. During this period, there was a 35% increase in the number of students who purchased a big game combination license. The license prices changed in 2015, when, as part of a broad set of license reforms, the cost of a non-resident student big game combination license increased by a whopping 700%, from \$70 to \$490. As a result of the price hike, student participation in



University of Montana Learn-to-Hunt students pluck upland birds.

hunting plunged by nearly 80% and never recovered. In 2017, a bill in the legislature sought to make licenses more affordable for students but was struck down in the very first committee hearing. How would we succeed where that effort had failed?

I had spent weeks not only researching hunting license laws, but also reading about the individual legislators, their districts, voting records, and policy priorities. Now, these lawmakers were sitting in front of us. I recognized them from videos of prior hearings -- where they often shot down proposals like ours. Waiting to make my presentation to the Montana Sportsman's Caucus, a bipartisan group of legislators who can endorse wildlife-related bills, I was silently repeating my pitch, tweaking my introduction, experimenting with my delivery, and deciding what facts to

emphasize. After a lightning round of questions, ranging in topics from licensing data and federal conservation funding to student credit loads, the caucus voted unanimously to support the concept of resident-rate licenses for non-resident students. While it was a big victory, there was plenty of work ahead.

In the following weeks, while I drove the icy roads from Missoula to Helena, with fog often making the mountainous landscape look more like a tundra, I rehearsed my elevator pitch, over and over. I practiced answering the toughest questions I could think of.

During the next few weeks, I had dozens of conversations with lawmakers. I usually had only 30 seconds or a minute while they walked to a meeting. We spoke in elevators, parking lots, and at water fountains. Often, they were rushed, but sometimes it seemed that they enjoyed talking with me—maybe it was a brief reprieve from a lawmaker's several-hour tax policy hearing. Occasionally, we had longer conversations, where we would have a friendly debate about the issue of hunting license costs. When we couldn't come to an agreement, we at least understood each other's positions.

Respect science, respect nature, respect each other.

I discovered that my status as a student was an asset. I lacked the baggage associated with a political party or interest group. With most lawmakers, I could find common ground, regardless of their party or district. Sometimes, that common ground was conservation funding, others wanted to recruit students to Montana, and many saw the proposal as a way to preserve Montana's hunting heritage or establish a fairer set of license prices.

We were fortunate to find a bill sponsor in Rep. Steven Galloway, of Great Falls, a city of about 60,000 on Montana's plains. Rep. Galloway is passionate about Montana's hunting traditions and supporting rural economies.

Dozens of conversations with legislators culminated with us writing a bill (HB 647) that would allow most full-time undergraduate and graduate students to hunt at a resident rate. When introduced, HB 647 had nearly 50 co-sponsors on both sides of the aisle. But it also had some vocal opponents among lawmakers and interest groups.

The next step was our first committee hearing. A majority of the Fish, Wildlife and Parks Committee, a group of roughly 20 representatives, would have to vote to support the bill or it would not move forward. About half of all bills die at the committee phase. It felt like we were standing at the start of a vast minefield, where losing control of the messaging around our bill would lead to its swift death.

Leading up to the hearing, students began writing to legislators to express their support. Then, on a gray day in March, a group of students joined Dr. Millspaugh, Tony Schoonen, and me to testify before the House Fish, Wildlife and Parks Committee.

"Having the chance to hunt and fish in Montana would mean so much to me," said Travis Hawkins, a University of Montana senior studying Finance and Management Information Systems. "It would further cultivate my love for wildlife and public lands that will be with me for my entire life, and that I hope to pass on to my kids." Travis' voice was one of the many student voices heard in the room that day.

Opponents, including the Montana Wilderness Association, Walleyes Unlimited, and Trout Unlimited forcefully argued against the bill. Their main concern, they told the committee, was that the bill would lead to a slippery slope: First, students would get resident-rate licenses, then other groups would ask for the same.

There was a stark difference in tone between the students' passion for hunting and conservation, and the lobbyists arguing that students hunting would trigger a chain of events eventually causing a gut-punch to the Fish, Wildlife and Parks budget.

Several days and one amendment later, the bill passed the committee on a 15-3 vote. Shortly afterward, the bill was heard on the House floor. From my laptop in the Boone and Crockett Lab, I watched representatives debate the bill—at this point, there was nothing I could say or do to shape the outcome. After a brief, but spirited, debate the bill passed the House of Representatives on a 71-25 vote.

Our big success in the House brought us to the Senate Fish and Game Committee, where students again came to testify, and opponents were now joined by the Montana Audubon



Jonathan Karlen testifying in support of the HB 647 before the Senate Fish & Game Committee, Helena, Montana, 2021.

Society. The bill passed that evening on a 7-4 vote. A victory, but on tighter margins than we had hoped. Next: the full Senate.

Before the vote in the full Senate, I drove back to the capitol to talk again with senators. I felt more desperate. We had come too far to fail on the last of six votes. Senators seemed more cautious about supporting the bill because a "yes" vote would send the bill to the Governor,

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rather than another committee that could kill the bill. On the vote tally screen, high on the wall of the senate chamber, the names of each senator slowly turned red and green. The final vote count was 33-17. The bill passed.

In early May 2021, Dr. Millspaugh and I joined Governor Gianforte and UM students for the bill signing, officially making HB 647 law. In 2022, hundreds of Montana students will purchase their first hunting license.

The experience made clear to me that, as students, our access to education, social networks, and professors who are experts on virtually every topic, position us to make a meaningful contribution to the policymaking process.

Montana's new law expanding hunting opportunities for students is also a component of a larger, national movement to engage a much-needed younger generation of hunters and conservationists.

There is now broad recognition that college campuses harbor unparalleled potential for recruiting lifelong hunters and conservationists and starting a dialogue about wildlife management. Campus-based hunter recruitment programs are proliferating across the country. Driving the success of campus-based hunter recruitment programs is that most college students are open to, and encouraged to, learn new skills.

Dr. Millspaugh and I see students' passion for and curiosity about hunting and conservation each semester. Most striking is that many of the students interested in learning to hunt are not from rural areas; rather, many grew up in cities, had non-hunting families, and may not have supported hunting before starting college. Today's students are growing up learning about threats of climate change, problems with factory farming, and the importance of sustainable food. They also want to be active conservationists. Students see wild game meat as a healthy, affordable, and sustainable alternative to much of what is offered at the store.

State legislative bodies are beginning to take note of college-student hunters. More than half of U.S. states now allow non-resident students to purchase resident-rate hunting licenses. Among these states, however, statutes often restrict the student populations eligible for licenses through age limits, provisions that exclude graduate students, or onerous application procedures. In states without statutes addressing non-resident college students, thousands of young people are priced out of a hunting license, paying rates meant for visitors who often

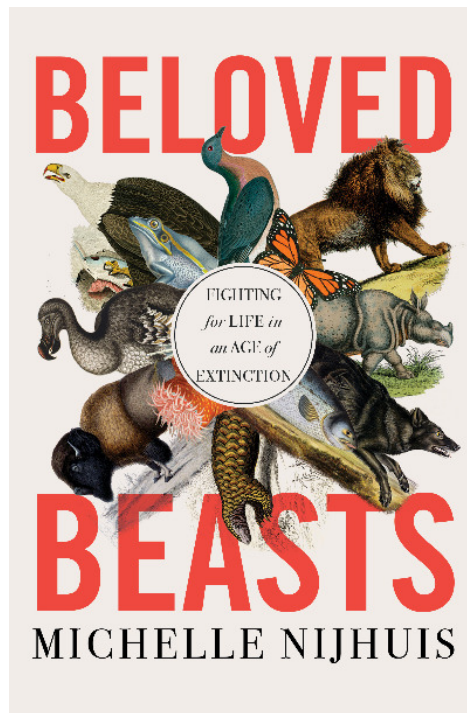
hunt with an outfitter. When states don't allow full-time students to hunt at a resident rate, they reduce the efficacy of the substantial investments being made to recruit hunters on campuses.

Our hope is that every state will remove unnecessary barriers to college students interested in hunting. I believe students are poised to lead this effort.

We cannot expect our future leaders to carry forward the legacy of hunters as conservationists if they view hunting as an inaccessible and elitist activity. We are at a critical juncture for the future of hunting and conservation: if all college students—resident and non-resident—can afford to hunt, a network of dedicated state agency and NGO professionals will ensure that they learn the skills to hunt safely and ethically. As Theodore Roosevelt wrote back in 1889: "From its very nature, the life of the hunter is in most places evanescent; and when it has vanished there can be no real substitute in old settled countries."

Jonathan Karlen, a Boone and Crockett Fellow at the University of Montana, served as President and Education Outreach Officer of the University of Montana Student Chapter of The Wildlife Society (TWS). He recently completed a bachelor's in Wildlife Biology with a minor in Climate Change Studies and is working toward a Master's in Public Administration. He can be reached at jonathan.karlen@umontana.edu

Banner Image: Students and Dr Millspaugh join Gov. Gianforte to sign HB 647



Book Review

Beloved Beasts—Fighting for Life in an Age of Extinction

By Silvio Calabi

READ TIME 5 MINUTES

Beloved Beasts: Fighting for Life in an Age of Extinction Michelle Nijhuis. 2021. W.W. Norton & Company. Hardcover, 342 pages, with b&w illustrations, acknowledgments, notes, further reading list and index. ISBN 978-1-324-00168-3

No, it's not a species-by-species rundown of endangered animals—the beloved beasts that (some) humans are fighting to save. Instead, the book is about the humans themselves, the heroes of conservation who are behind the saving, and what they accomplished: From Carl Linnaeus, in 1729 (we can't protect something until we define it), to Emmanuel Frimpong, current day.

You've never heard of Emmanuel Frimpong? From Ghana? For 10 years, he has been observing bluehead chub, mountain redbelly dace and eight other colorful species of small freshwater

Respect science, respect nature, respect each other.

fish in Toms Creek, a trickle of water that flows through a public park in the state of Virginia. Frimpong belongs to the Fish and Wildlife Conservation faculty at Virginia Polytechnic Institute; as a newcomer on a tight budget, he began studying the chub and their co-inhabitants because they were abundant and right there.

Although they're hardly charismatic and of no direct interest to the anglers who annually contribute millions of dollars to conservation across the US, these overlooked fish captivated Frimpong because of their spawning behavior. They share their nests across species and cooperatively protect them and keep them free of suffocating silt: "A single nest can be surrounded by hundreds of fish—a motley school ranging from pale blue and pink to brilliant yellow and red."

As opposed to elephants, tigers, condors and the other apex species that get so much of our attention (and funding), these fish live near the bottom of their ecological heaps—mere food for larger fish, birds, mammals and, finally, for microorganisms. But they contribute to the intricate workings of their ecosystem in ways that Frimpong and his students are teasing out. What effects do these "insignificant" fish have on aquatic vegetation and insect life, or on the makeup of the stream bed itself?

As the author notes, these fish aren't insignificant at all; they are emblematic: "The larger project of conservation—that of protecting the relationships that support all life on earth—can't be accomplished with emergency measures alone. It has to start with common species." Thus Emmanuel Frimpong's work isn't insignificant either. In this context, he belongs at the close of *Beloved Beasts* as much as Linnaeus does at the beginning. Inbetween, Nijhuis hits critical turning points in modern conservation via the people who initiated them:

William T. Hornaday, the taxidermist who in 1886 "collected" 21 of the American West's last bison for a diorama at the US National Museum, now the Smithsonian Institution. Although it wasn't Hornaday's intent, his work became an example of saving animals (a species, that is) by killing them (individuals, that is)—a troublesome contradiction that lies at the root of today's furor over hunting. When it opened, in 1888, Hornaday's bison exhibit became a sensation and focused attention on extinction as not only a threat, but also something that might be thwarted.

Other heroes: Rosalie (Mrs. Charles Noel) Edge, the Manhattan socialite, suffragist, birder and scourge of the National Association of Audubon Societies, which as late as 1929 was still

condoning the killing of raptors on behalf of gamebirds. This was in the aftermath of the mass harvesting of birds for their plumage for ladies' hats, which spurred Pres. Theodore Roosevelt to set aside Pelican Island, in Florida, as that nation's first bird sanctuary, which in turn led to the US National Wildlife Refuge System. In 1934, Rosalie Edge acquired an exposed ridgetop in eastern Pennsylvania where migrating raptors were being shot by the thousands—today, the internationally famous Hawk Mountain Sanctuary that has helped train many ornithologists.

In Wisconsin, Aldo Leopold, the forester, early environmental scientist and “dangerously eloquent” author of *A Sand County Almanac*. Followed by Julian Huxley, the trail-breaking British evolutionary biologist whose grandfather, T.H. Huxley, had been so vociferous in his defense of evolution that he became known as “Darwin’s bulldog.” Rachel Carson, the marine scientist whose 1962 exposé of DDT was first serialized in *The New Yorker* and then became a best-selling book called *Silent Spring*. Michael Soulé, who—at an outdoor dinner in 1978 in the San Diego Zoo’s Safari Park—proposed a new field of study called conservation biology. Garth Owen-Smith, the sparkplug of Namibia’s renowned community-conservancy program ([eulogized](#) in CFL in July 2020).

Some of these heroes knew each other and worked together; all of them built on their predecessors’ efforts. *Beloved Beasts* makes it clear that no one operates in a vacuum. In turn, the book’s subjects impacted other effective people also, from Theodore Roosevelt and John Muir to Stewart Udall, John F. Kennedy, Winston Churchill, Paul Ehrlich, E.O. Wilson and many more, including ultimately the voter on the street. Their work led to the National Park System, the National Environmental Policy Act, the Endangered Species Act, the Clean Air Act and the Clean Water Act, all in the US, and countless global steps along conservation’s wobbly path such as the founding of the IUCN, the International Union for Conservation of Nature. Conservation is not just a scientific endeavor, it is a political and social process that requires broad, deep and active support from non-scientists.

This is a rousing and opportune book written by a pro who knows the value of research. Her explanations of the timeliness of important ideas make us wonder: Who’s next? Who can turn us away from the destruction that seems to be overtaking our Earth?

Silvio Calabi has been a journalist, author, editor and publisher for 45 years, most recently with Conservation Frontlines. He lives on the coast of Maine and in the mountains of Colorado.



Changes at the Conservation Frontlines Newsroom

By Gerhard R Damm

READ TIME 1 ½ MINUTES

Our North American editor Silvio Calabi will finally retire and take time to explore the wild and beautiful corners of the world. Silvio diligently and unselfishly assisted the *Conservation Frontlines* team right from the start (he probably never imagined that his generous offer to assist morphed into almost full-time job, pro-bono to boot). His decades of experience in outdoor publishing was immensely helpful in guiding the emerging *Conservation Frontlines Newsroom* through more than 2 years—and his editing proficiency has garnered profuse acclaim within our team and with our authors.

Thank you, Silvio, for your unselfish dedication, diligent work and sound advice. We really appreciate your contribution to shape purpose and content of the *Conservation Frontlines Newsroom*. Safe travels, and keep the passion!

And there will be some changes to our newsroom too:

We noted that the quarterly Ezine with around twenty articles (at times some quite lengthy ones) is taxing the attention span of readers. Therefore, we are terminating the quarterly publication of the *Conservation Frontlines Ezine* with this issue.

Starting in August, we will publish articles individually, on an *ad hoc* basis, as and when compelling conservation topics arise. Emerging and critical issues will land in your inbox whilst hot and new. Our authors (and the articles we select for re-publishing) will continue providing concise analysis, opinion and/or commentary.

With the new format we expect to avoid information overload, and focus our readers' attention on a single topic for 5 to 15 minutes. As a new feature, we will create a searchable

article depository (with author, article title, article synopsis, word count, read time and keywords) to give you access to all past and future articles as individual pdf.

The monthly *Frontline Dispatches* newsletter will continue in the known format.



Publisher

Conservation Frontlines® Foundation (USA)

Editor-in-Chief

Gerhard R Damm (South Africa)

Contributing Editor (North America)

Jon McRoberts (USA)

Consulting Editor & Brand Development

Derek Carstens (South Africa)

Administrative Director: Colleen Roberts (USA)

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Conservation Frontlines® Foundation

PO Box 917, Middleburg, VA 20118-917, USA

Email: admin@conservationfrontlines.org

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