



Forty Years in the Making

A SURVEY OF WILDLIFE LAW ENFORCEMENT NEEDS

By Aaron M. Haines, Stephen L. Webb and Folake Meshe

Over the last 40 years, the extent to which humans negatively impact wildlife has become clearer. [The Living Planet Report](#), published in 2014, estimated that since 1970, populations of living vertebrates — fish, amphibians, reptiles, birds and mammals — declined by as much as 52 percent as a result of habitat loss and degradation. In addition, researchers recently estimated that the extinction rate today is eight to 100 times greater than the natural extinction rate ([Cebellos et al. 2015](#)). In fact, 44 of the 74 largest terrestrial herbivores such as elephants, rhinoceros, tapirs and camels have become threatened with extinction, a situation that could lead to the potential collapse of multiple ecosystems around the world ([Ripple et al. 2015](#)). After habitat loss and degradation, scientists believe that overexploitation of wildlife is the second leading cause of biodiversity loss ([Primack 2014](#)).

vertebrate species in China ([Yiming and Wilcove 2005](#)). Although an accurate count is difficult to obtain, the number of illegal wildlife items reported to the Convention on International Trade in Endangered Species of Wild Fauna and Flora has increased greatly since the 1980s, suggesting that the current scale and intensity of poaching and the illegal wildlife trade has also gone up ([Myatta 2013](#)).

Efforts to stop international poaching and wildlife trafficking got a boost in July 2013 when President Obama signed the executive order [Combating Wildlife Trafficking](#), and a report prepared for Congress, [International Illegal Trade in Wildlife: Threats and U.S. Policy](#), was released.

In order for these policies to be effective, state wildlife law enforcement officers need new and more effective tools. The 1989 Interstate Wildlife Violator Compact — an agreement that recognizes suspension of hunting, fishing and trapping licenses of poachers in member states — has helped officers enforce the law, but more needs to be done to combat the sophisticated methods used today by poachers and traffickers.

Given the lack of published studies in the scientific literature on wildlife law enforcement issues over the last four decades, we initiated a study designed to fill that gap and hopefully facilitate research on specific topics that will help combat current illegal activities that threaten wildlife populations both in the United States and elsewhere (*The Wildlife Professional* 9.2, 2015).

Then and Now

In 1978, Beattie and Giles (1979) mailed a questionnaire to all state fish and wildlife agencies in order to identify the research needs of wildlife law enforcement officers. The survey included three questions:

1. What are the research needs of your wildlife law enforcement agency?
2. What are your current research efforts?
3. What are your anticipated future research efforts?

▼ Conservation officers interact frequently with the public. Here, Pennsylvania Game Commission Officers check the authenticity of hunters' licenses. One of the most-mentioned research needs of wildlife enforcement was gauging public support and attitudes toward wildlife law enforcement.



Credit: Hal Korber



Our survey, which was conducted in 2015 by mail and with an online survey tool, included similar questions. We sent the survey to approximately 140 members of the National Association of Conservation Law Enforcement Chiefs (NACLEC), an organization founded in 1996 and dedicated to providing a venue for state, federal and international natural resources law enforcement agencies to discuss issues, collaborate to solve problems and share best practices for conservation law enforcement. In addition, we asked how technology has helped poachers and wildlife law enforcement, and what officers saw as the least and most effective ways to reduce wildlife crime.

Over half of the 50 state agencies responded, similar to the number that responded to the 1978 survey. The top research needs were not related to forensic technology and included evaluating the effectiveness of wildlife law enforcement efforts (19 responses), whether violations improve public compliance (10 responses), public support and attitudes toward wildlife law enforcement (10 responses), quantification of violations (7 responses), and rates of crimes and wildlife forensic techniques (7 responses). In contrast, quantifying violations and wildlife forensic techniques were identified as the top research needs in the 1978 survey.

Even today, amidst heightened illegal activities, only a small number of law enforcement agencies fund research that could improve protection of wildlife. Forty-two percent of respondents indicated that their law enforcement agency had no current research efforts, while 11 percent skipped this question. In addition, 45 percent indicated that no future research efforts were planned and 26 percent did not answer the question. Forty years ago, the results were about the same. Among those agencies conducting research today, the top two responses centered on non-forensic topics: development of GIS and database management systems to analyze reported poaching violations.

Similar to the previous survey, we found that although most agencies are not involved in law enforcement research, nearly all law enforcement respondents identified a large number of research needs for their agency. Respondents said they were interested in assessing the public's support for wildlife law enforcement activities and improving the efficiency and effectiveness of enforcement effort on the ground.



Credit: Hal Korber

Compared to 40 years ago, technology now plays a big role in poaching activities. Survey respondents said that poachers use a wide array of technology for their illegal activities, including: night-vision, real-time or remote field cameras; smart devices; GPS tracking devices; and social media. However, law enforcement officers also have more sophisticated devices at their disposal, such as surveillance cameras — including body, trail and pole cameras — GPS, GIS, smartphones and social media. Modern record management systems, including hunter databases and GIS, have also been helpful in finding and catching poachers.

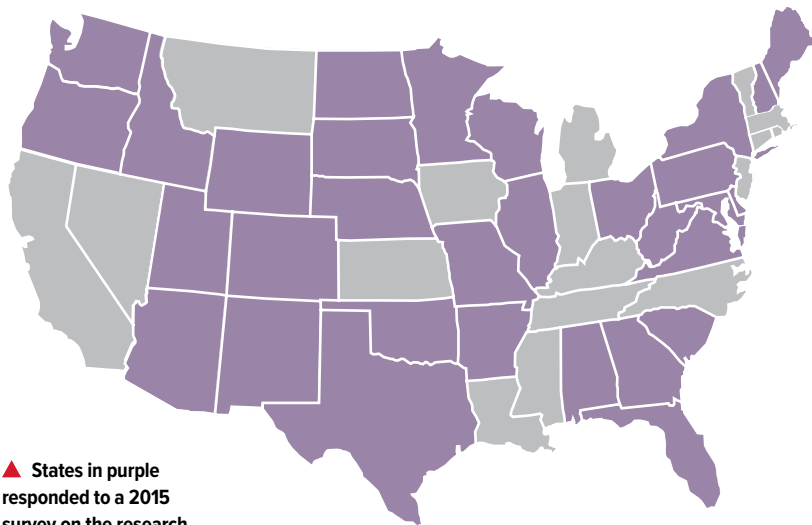
We also found that wildlife law enforcement officers view public support and participation in reporting poachers to be effective wildlife crime prevention strategies. Other effective ways to mitigate wildlife crime were comprehensive and random visible patrols, just and consistent regulations, and public education. In contrast, conducting simple, routine surveillance patrols and implementing new regulations without additional support were both considered ineffective crime prevention strategies.

Next Steps

Our goal in conducting this survey was to help identify the research needs of wildlife law enforcement. By doing so, we hope to foster an interest in collaborative research between the wildlife academic and law enforcement communities.

Based on survey results, we identified a number of worthwhile projects that could help improve enforcement efforts. Among the needs are:

▲ A Pennsylvania Game Commission officer uploads data into the state's records management database. Among the state agencies conducting research today, most of the work centers on non-forensic topics such as development of GIS and database management systems to analyze reported poaching violations.



▲ States in purple responded to a 2015 survey on the research needs of wildlife law divisions with 42 percent indicating that their law enforcement agency had no current research efforts. Alaska and Hawaii did not respond. Respondents said that the effectiveness of wildlife law enforcement efforts was a top research need.

Credit: Aaron Haines

- 1) quantifying reporting rates of wildlife crime (e.g., effectiveness of turn-in-a-poacher hotlines);
- 2) identifying opportunities and strategies to improve public collaboration with wildlife law enforcement;
- 3) identifying hotspots of poaching activity via GIS database systems to improve law enforcement focus (Haines et al. 2012);
- 4) determining if database systems correlate to increased number of arrests;
- 5) evaluating public perceptions of wildlife crime penalties; and
- 6) reviewing natural resource state regulations and laws, including punishment, to determine if rates of wildlife crime correlate with laws and/or punishments.

But to conduct these studies, state agencies need funding, which is difficult for them to justify given today's tight budgets. Inadequate funding already prevents law enforcement from being in the field when needed, negatively impacts recruitment and retention of law enforcement officers and lowers state agencies' ability to protect wildlife resources (Eliason 2011).

Even 40 years ago, Beattie and Giles recommended that states better allocate funding for law enforcement research via cost-sharing money from the Pittman-Robertson Act or the Dingell-Johnson Act. These funds can help research projects get started and potentially lead to matching federal funds when state agencies team with wildlife and fisheries departments at universities.

However, for such efforts to get off the ground, more funding mechanisms are needed. For example, the [Wildlife Crime Tech Challenge](#) — an initiative of the U.S. Agency for International Development in partnership with the National Geo-

graphic Society, the Smithsonian Institution and TRAFFIC — awards from \$10,000 to \$500,000 for innovative science and technology solutions that tackle specific wildlife trafficking issues.

Both nationally and internationally, criminal networks are increasingly involved in wildlife trafficking and are profiting from decimation of valuable wildlife resources. These criminals are more organized, sophisticated, and technologically advanced than ever before, and a global effort is needed to stop them. Recent efforts have shown promise in this regard, including identification of elephant poaching hotspots based on DNA extracted from confiscated ivory (Wasser et al. 2015) and the use of infrared thermography to improve anti-poaching patrols (Hart et al. 2015). An international survey of wildlife enforcement officials similar to that described here could help identify other needs and lead to research efforts aimed at reducing global wildlife exploitation.

In a previous article in *The Wildlife Professional*, "Cracking Down on Wildlife Crime," we called for revitalization of research focused on wildlife (Vol 9.2, 2015). Now that we have identified the research needs of the wildlife law enforcement community, we hope the U.S. wildlife law enforcement and research communities can come together to focus on new and improved methods of reducing illegal poaching and trafficking in this country. ■



Credit: Brent Horton

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