

U.S. Department of the Interior

Annual Report on Prize Challenges

FY 2015 Activities

January 2016

I. Summary

This report is submitted to the Office of Science & Technology Policy in support of the 2015 Annual Report on Prize Challenges under the America COMPETES Reauthorization Act of 2010 (ACRA) [15 USC § 3719(p)], an amendment to the Stevenson-Wydler Technology Innovation Act of 1980 (PL 96–480). This report highlights the fact that the Department of the Interior (Department) is actively engaged in developing and using its capacity to offer prize challenges under the authorities provided within ACRA. Specifically:

- In April 2015, the Department issued policy and procedural guidance on offering and administering prize competitions.
- The Bureau of Reclamation established the Water Prize Competition Center in FY 2015. This Center is leading several interagency efforts to develop new, or improve existing, technologies to increase water availability, improve infrastructure sustainability, and ensure sustainable ecosystems. The Center launched its first competition in FY 2015. It was designed to develop, test and demonstrate new methods to remotely track fish.
- On the 5-year anniversary of the launching of <Challenge.gov>, Reclamation received the *Newcomer of the Year Award* for its pioneering efforts in developing and implementing the Water Prize Competition Center, and the *Best in Technology Award* for contributing its technical expertise and the testing facility to enable the USAID-Reclamation international Desal Prize competition seeking a scalable, sustainable, and affordable desalination technology for use in rural areas in both developing and developed countries, including in Native American communities. As a result of the competition, two teams were selected for their top performing brackish water desalination technologies. MIT and Jain Irrigation Systems were awarded first place for their joint photovoltaic-powered electro dialysis reversal (EDR) system and the University of Texas at El Paso (UTEP) Center for Inland Desalination Systems finished second with their Zero Discharge Desalination (ZDD) technology. In addition, a Reclamation desalination research expert, Saied Delagah, won the *Unsung Hero Award* for his outstanding, behind the scenes coordination of the technical efforts that enabled the international Desal Prize. The Awards were sponsored by the General Service Administration and the Office of Science & Technology Policy.
- The United States Geological Survey (USGS) is partnering with other Federal agencies (National Oceanic and Atmospheric Agency, NOAA, and the Environmental Protection Agency, EPA) on the National Aeronautics and Space Administration (NASA) sponsored Climate Resilience Data Challenge. This challenge is part of the Climate Data Initiative, a broad effort to leverage the federal government’s extensive, freely-available climate-relevant data resources to spur innovation and private-sector entrepreneurship to advance awareness of and preparedness for the impacts of climate change. USGS is focused on providing ideas to improve Climate Resilience to address adverse impacts of climate change, such as coastal flooding, sea level rise, food security, and effects on public water supplies. USGS is also cooperating with Reclamation’s Water Prize Competition Center’s efforts. Its personnel have also offered technical assistance, data support and judging services to the California AgTech Roundtable’s *Aps for Ag* hackathons.

- The Bureau of Land Management (BLM) is working on raising funds for a prize challenge that would help address the challenge of using fertility control vaccines to manage healthy wild horse and burro populations on public lands. Currently available fertility control technologies are limited in their effectiveness due in part to the logistical challenges of consistently finding, tracking and treating the animals. A solution to this challenge is critical because wild horse and burro herds have a rapid growth rate if left unchecked, annual adoptions of excess animals are at a near-record low and the cost to care for unadopted excess animals in BLM-funded off-range corrals and pastures is unsustainable in the long-term.

Finally, in a prize competition offered under its general authority to conserve wildlife species, the United States Fish and Wildlife Service (FWS) is conducting the Crushed Ivory Design Challenge Prize to identify creative ideas to raise public awareness of wildlife trafficking and help reduce demand for elephant ivory and other illegal wildlife products. This prize would be awarded for the idea to best use illegal ivory that was seized and crushed by authorities under the Ivory Crush program to prevent it from being marketed.

The following summarizes prize challenge related activities for various bureaus, and provides additional information on the above prize competitions, including the authorities under which they are being offered and their current status. Details are also provided for challenges where DOI bureaus are the lead sponsors.

II. Bureau Activities on Prize Challenges

Bureau of Reclamation

Reclamation's Research and Development Office (through the Science and Technology Program) established the [Water Prize Competition Center](#) in FY 2015 to launch nationwide prize competitions under the prize competition authorities provided by the America COMPETES Reauthorization Act of 2010 (15 USC § 3719).

Reclamation Water Prize Competition Center has begun to launch prizes that seek innovative solutions related to the following mission-critical areas.

- *Infrastructure Sustainability.* These prizes would be designed to help increase the efficiency and effectiveness of operations, maintenance and repair of the extensive inventory of water storage, water delivery, and hydropower generation infrastructure managed by Reclamation. They would help meet increasing water demands of the West while protecting the environment and the public's investment in these facilities.
- *Ecosystem Restoration.* These prizes are intended to help recover fish species listed as threatened and endangered, and prevent new listings under the Endangered Species Act. Effective solutions will help Reclamation comply with environmental laws and regulations and sustain healthy aquatic ecosystems, while continuing to meet its water delivery obligations.
- *Water Availability.* These prizes would assist Reclamation to better conserve and manage existing water supplies, create new sources of useable supplies, and forecast and manage water supplies to meet competing water needs under a variable and changing climate.

While Reclamation's mission is focused on the West, it is expected that the technologies advanced through these efforts will, in general, be relevant worldwide.

Reclamation forged collaborations with other federal agencies that have a stake in these mission areas to collaboratively design, launch, and judge the prize competitions. Federal collaborators currently include USGS, NOAA, FWS, NASA, EPA, U.S. Army Corps of Engineers, U.S. Department of Agriculture, and the National Institute of Standards and Technology. The Federal collaboration will enable agencies to leverage Federal capabilities, catalyze interagency working relationships, better define and solve joint problems, avoid duplication, find solutions that have a broader impact across the mission of multiple Federal agencies, and advance the interests of their stakeholders, and the public good.

Reclamation's first prize competition sought new concepts to remotely track fish. It offered a total prize purse of \$20,000, including a First Prize of at least \$5,000. In addition, Reclamation spent over \$50,000 in administering and managing the challenge. Through this prize competition, the Federal government received a perpetual, no-cost right to use 22 solutions that were submitted by Solvers from around the world. The top six submissions include ideas that the panel of expert federal judges believed had strong promise and should be further tested and demonstrated. Other submissions also identified innovative or novel approaches, but were considered more difficult or unlikely to be practical at this time.

The ability to reliably and effectively track fish throughout their life-cycle is central to efforts to recover threatened and endangered fish species. Current methods to track fish rely on capture and handling of fish to implant or attach tags that can be complex, costly, and stressful to the fish. Current tagging technologies also have longevity and detection capability shortcomings, which limit the ability to interpret data needed to inform fish recovery actions. Discovering new or different concepts and technologies to track and monitor fish health could provide breakthroughs that significantly improve the effectiveness and reliability of fish recovery programs.

For its efforts on prize challenges during FY 2015, Reclamation and its personnel received 3 awards at the 5-year anniversary of Challenge.gov in early FY 2016. These are:

- *Newcomer of the Year (2015)*, awarded to Reclamation's Research and Development Office for creating the Water Prize Competition Center and forging interagency coalitions to collaborate on launching water and water related prize competitions.
- *Best in Technology*, awarded to Reclamation for contributing the technical expertise and demonstration facilities used to conduct the USAID-sponsored Desal Prize. USAID interests were to advance small scale desalination technologies to support family farm businesses in developing countries while Reclamation's interests were to advance small scale desalination technologies that could be used by Native American and rural communities in the western U.S. As a result of the competition, two teams were selected for their top performing brackish water desalination technologies. MIT and Jain Irrigation Systems was awarded first place for their photovoltaic-powered electro dialysis reversal (EDR) system and the University of Texas at El Paso (UTEP) Center for Inland Desalination Systems finished in second with their Zero Discharge Desalination (ZDD) technology.

- *Unsung Hero*, awarded to Saied Delegh, a Reclamation desalination research expert, for his outstanding, behind-the-scenes coordination of the technical efforts that made the Desal Prize possible.

During FY 2016, Reclamation plans to launch several challenges in each of the 3 subject matter themes. Reclamation also plans to explore ways to combine the authorities provided by Prize Competitions (15 USC § 3719) with Technology Transfer Act of 1986 authorities (15 USC § 3710a) to forge partnerships with non-federal organizations, including the private sector, to accelerate innovation and the lab-to-market process through jointly sponsored prize competitions.

United States Geological Survey (USGS)

In FY 2015, USGS participated in several prize competitions and related activities in conjunction with other agencies within and outside the Department. In each of these, the USGS role typically consists of providing technical and scientific expertise to help judge submissions, familiarize participants with and provide access to USGS data, helping develop the challenge design, helping identify best challenge practices, and supplementing, where necessary and appropriate, prize purses. Following is a brief summary of these challenges, related activities and significant outcomes to date.

Climate Resilience Data Challenge. This Climate Data Initiative is a broad effort sponsored by NASA, in partnership with USGS, NOAA and EPA, to leverage the federal government's extensive, freely-available climate-relevant data resources to spur innovation and private-sector entrepreneurship in order to advance awareness of and preparedness for the impacts of climate change. This challenge had multiple phases — Idea Generation, Design, and Prototype Development. There were three "Idea Generation" challenges, with competitors being tasked with providing ideas to help society become more resilient to climate impacts (e.g., coastal flooding, sea level rise, food security, public water utilities etc.) using three categories of data: (a) only NASA Climate Data, (b) only US Federal Government Climate Data, and (c) any data, whether currently available or not.

This challenge, which closed in April 2015, resulted in mobile applications related to permafrost prediction that could be used by Alaskans and others to rate infrastructure risk; identification of large harmful algae blooms in the Great Lakes region; and an agricultural application related to crop yields based on various climate conditions that could be used by farmers. Additional information on this challenge is available from NASA's [Climate Resilience Data Challenge web site](#).

Water Prize Competition Center. The USGS is cooperating with the Bureau of Reclamation's Water Prize Competition Center (see above) to identify, coordinate, and run multiple challenges centered around water availability, ecosystem restoration, and infrastructure sustainability. The Columbia River Research Laboratory, within the USGS Western Fisheries Research Center, has supported Reclamation's efforts to establish prize competition processes, and launch the initial prize competition seeking New Concepts to Remotely Track Fish. Subject matter experts from Reclamation and the USGS Columbia River Research Laboratory co-led the prize competition design and judging for this initial challenge and are actively working as part of the design and judging teams on other aquatic ecosystem restoration prize competitions.

USGS scientific and technical personnel are also participating in the water availability theme area and are currently generating potential prize competition ideas including a Science Data and Collection Reporting App, Water Budget Calculator App, and a Multi-Scale Objective Drought Monitoring and Prediction Tool.

Apps for Ag. Finally, USGS personnel have offered the pro-bono California AgTech Roundtable and supported by several regional agricultural technology hubs. The Roundtable held a successful “hackathon” at the Farm of the Future operated by West Hills College in Coalinga, CA in 2014. At this hackathon, teams of coders competed to create cell phone apps to meet the stated needs of farmers. About 60 people participated. The AgTech team is organizing a second *Apps for Ag* with the UC Davis World Food Center in early FY 2016. The ad hoc organizing panel is also working with Cabrillo College in Monterey County on a third *Apps for Ag* in the spring.

Roundtable members include USDA, CDFA, California Department of Technology, California Public Utilities Commission, California Farm Bureau Federation, California Association of Pest Control Advisers, San Joaquin Valley Partnership, Valley Vision, Western Growers Association and other organizations. USGS will participate in judging, and providing data, technical expertise, and onsite participation.

Fish and Wildlife Service

Crushed Ivory Design Challenge Prize. FWS is conducting a challenge to identify creative ideas on how best to use illegal ivory that was seized and crushed by authorities under the Ivory Crush program to prevent it from being marketed in order to raise public awareness of wildlife trafficking and help reduce demand for elephant ivory and other illegal wildlife products. The challenge, offered under the FWS’s general authority to conserve wildlife species, was announced in FY 2014, and closed in FY 2015. However, as of this writing, winners have not been announced.

Bureau of Land Management

The BLM’s Wild Horse and Burro (WHB) program is working on a prize challenge to sustainably manage wild horse and burro populations on public lands. Currently available fertility control technologies are limited in their effectiveness due in part to the logistical challenges of consistently finding, tracking and treating the animals. A solution to this challenge is critical because wild horse and burro herds have a rapid growth rate if left unchecked, annual adoptions of excess animals are at a near-record low, and the cost to care for unadopted excess animals in BLM-funded off-range corrals and pastures is unsustainable in the long-term.

The BLM worked with InnoCentive, a global leader in crowdsourcing innovation problems, to design a competition to identify best solutions to manage wild horse population growth rates. Because they are open to solvers from a variety of disciplines, the BLM’s Prize Challenge has the potential to access untapped talent to deliver unexpected solutions to tough problems. Reaching out to a variety of disciplines increases the odds of identifying new approaches, should they exist.

A prize would only be awarded to a solution that is judged viable. Currently, the BLM is working with external non-governmental organizations to develop a fund-raising plan for its Prize Challenge and determining next steps for soliciting private funds for the prize, including

potentially forming partnerships with external entities. BLM anticipates that technology transfer will be a component of any solutions identified as part of this effort.

III. Specific Prize Competitions

The following pages provide details on each prize competition that was offered or ongoing under the lead sponsorship of a DOI bureau. These include the following competitions that were new or still open in FY 2015.

- New Concepts for Remote Fish Detection. Lead sponsor: Reclamation — offered under the America COMPETES Reauthorization Act of 2010.
- Crushed Ivory Design Challenge Prize. Sponsor: FWS — offered under the FWS's general authority to conserve wildlife species.

New Concepts for Remote Fish Detection

1. Title of prize competition or challenge

New Concepts for Remote Fish Detection

2. Sponsoring Agency

Department of the Interior – Bureau of Reclamation

3. Primary Point of Contact for the prize competition

Chuck Hennig, chennig@usbr.gov, ph: 303.445.2134

4. Tagline

The prize competition sought ideas for new or better ways to reliably track fish throughout their life-cycle. The ability to track fish is central to efforts to recover threatened and endangered fish species and reduce impacts to at-risk species. Reliable, affordable detection and tracking provides vital information about how many fish are present, where and why mortality occurs, and where and why species thrive. This information enables fish recovery program managers to pursue targeted and more effective actions that can reduce mortality rates, improve habitat, and increase survival rates while continuing to meet the Bureau of Reclamation's mission of delivering water and power to our customers and stakeholders.

Current methods to track fish rely on capture and handling of fish to implant or attach tags that can be complex, costly, and stressful to the fish. Current tagging technologies also have longevity and detection capability shortcomings, which limit the data interpretations needed to inform fish recovery actions. New fish tracking capabilities can also reduce costs and increase the effectiveness and efficiency of various fish recovery efforts led by other federal, state, local organizations.

This competition solicited ideas from around the world. However, to comply with the Federal law that authorizes prize competition (15 USC 3719), competition rules specified that only United States citizens, permanent residents, or incorporated entities were eligible to win a prize.

The Federal government received a perpetual, no-cost right to use all 22 ideas that were submitted. The top six submissions include ideas that the panel of expert federal judges believed had strong promise and should be further tested and demonstrated. Other submissions also included innovative or novel approaches, but were considered more difficult or unlikely to transform into practice.

5. Link to the homepage for the prize competition

<https://www.challenge.gov/challenge/new-concepts-for-remote-fish-detection/>

6. Problem Statement

The prize competition sought new or better ways to track fish in order to improve the effectiveness of efforts to recover threatened and endangered fish species. The competition only requested white paper submission of ideas.

7. Proposed Goals

In priority order:

- Solve the specific problem
- Improve government service delivery
- Find and highlight innovative ideas
- Engage new people and communities

8. Why a Prize?

The Bureau of Reclamation and the collaborating federal agencies pursued a prize competition because of their desire to seek innovative solutions from beyond the usual sources of potential solvers and experts that commonly work in the fish recovery management domain. We find ourselves often wondering if somebody somewhere may know a better way of tracking and monitoring fish for our purposes than the methods we currently use. The prize competition approach enables agencies to tap a new source of potential Solvers to generate new and timely solutions that would not likely be accomplished by standard contractual methods. The outcome vindicated this expectation.

9. Participants

Ideas were sought from people regardless of their age, background, experience, or location. Participant eligibility requirements were consistent with the Prize Competition authorities included in the America COMPETES Reauthorization Act of 2010 (15 USC 3719). InnoCentive, Reclamation's prize competition services contractor, administered this competition. As such, the identities of only the winning solvers were revealed to Reclamation and judges after the judging process was complete. Reclamation received 22 submissions, and awarded prizes to 4 submissions. In addition, 2 submissions were only recognized for merit but not awarded a prize because they were submitted by foreign citizens who, therefore, were ineligible to win a prize under the America COMPETES Reauthorization Act of 2010.

Winning participants were highly educated experts from other technical domains who were currently practicing or retired. Technical domains included electrical engineering, biomedical engineering, physics, geophysics, and telecommunications. One participant said: *"I have to tell you that before the challenge I didn't know that much about the current state of fish tagging – it turned out to be a fascinating topic, with some surprising parallels to the technology of mobile phones. It also gave me an excuse to spend a day at the New England Aquarium, watching fish swim"*

10. Timeline

Submission period begins on July 27, 2015.

Submission period ends on August 26, 2015.

Judging period ends on October 26, 2015.

Winners announced by November 9, 2015.

11. Solicitation & Outreach

In addition to posting the competition on Challenge.gov and the Federal Register, Reclamation relied heavily on using contracting services to reach curated communities of potential solvers. The curated communities utilized are the online InnoCentive Challenge Center, the Scientific American Citizen Science Center, and the Nature Open Innovation Pavilion. Reclamation also issued an agency press release and used various social media messaging capabilities. One lesson learned from this exercise is that with more deliberate efforts and time allocated to outreach, prize competitions could be more effective and strategic in reaching a broader potential Solver community, including universities.

12. Incentives

Reclamation guaranteed that it would pay a total monetary prize purse of \$20,000 to the best idea(s) in exchange for all solvers agreeing to grant a perpetual, no-cost, right-to-use license to the Federal government to use their idea regardless of whether they were selected as winner(s). It also guaranteed that one award would be no smaller than \$5,000, and no award would be smaller than \$2,500.

13. Evaluation and Judging

A team of 8 subject matter experts from collaborating federal agencies judged the submissions. All judges independently evaluated all 22 submissions against the technical criteria stated in the prize competition. A final judges meeting allowed all judges to discuss their findings and develop a consensus selection of the winning submissions. The posted judging criteria were:

1. The best device/method/technique would be able to:
 - a. Be used for freshwater fish as small as 4 inches in total length (if a physical tag is used, it must be less than 5% of the fish's body weight).
 - b. Detect and identify individual fish from a minimum of 30 feet from the detector device throughout the entire water column (up to 30 feet in depth or laterally).
 - c. Detect and identify rapidly moving individual fish with detection efficiency > 95%, even when in a school or assemblage of like or different species that may or may not be similarly tagged or marked.
 - d. Be used on a large scale (e.g., if tags used, should be able to tag > 1,000 fish/day using two people) and scalable to use in a field setting where fish would be marked after capture from rafts, small boats, or from banks of water bodies in remote field locations.
 - e. Reduce capturing or handling of fish to an original marking or tagging event.
2. The system should not modify the behavior, physiology, genetic, phenotypic, growth, survival, or edibility of the fish of interest, or other fish and aquatic animals near the fish of interest.
3. Detection devices should not be susceptible to normal electromagnetic interference, which would include overhead power lines, turbine motors such as those found at dams, water pumps, outboard and inboard motors, transformers, etc.
4. The method must have performance characteristics as good as or better than existing 12-mm existing passive, active acoustic, and radio tags. These performance characteristics are:
 - a. Shedding rates are less than 5%.

- b. Durability is defined as capable of being dropped from a height of 4 feet and submersible to a water depth over 300 feet without damage.
- c. Longevity should be greater than 10 years under in- service conditions.

In addition, the criteria noted that the following were not required to win an award but were identified as “nice to have”:

1. The detection device should be portable (i.e., less than 50 pounds) and capable of being operated by one person.
2. Detection devices should not be susceptible to any electromagnetic interference.
3. If tags are used (one device per fish), they should be capable of mass production to meet demand at a reasonable cost and show promise for future miniaturization.
4. The method should be capable of successfully identifying individual fish in both freshwater and seawater.
5. The method should be capable of detecting and identifying individual fish from a minimum of 100 feet away from the detector device throughout the entire water column (up to 100 feet in depth or laterally).
6. The solution should be capable of identifying fish as small as 2 inches in total length, and if a physical tag is used, it should be no more than 2% of the fish’s body weight.

14. Partnerships

The Bureau of Reclamation sponsored the competition but received significant in-kind service contributions from subject matter experts with the U.S. Geological Survey, NOAA-National Marine Fisheries Service, and U.S. Army Corps of Engineers. These other federal agencies also have a strong stake in fish tracking technologies and fish recovery programs. Federal collaboration enables agencies to leverage Federal capabilities, catalyze interagency working relationships, better define and solve joint problems, avoid duplication, and find solutions that have a broader impact across the mission of multiple Federal agencies, the stakeholders we collectively serve, and overall public good.

15. Resources

Appropriations to Reclamation’s Science and Technology Program specific for prize competitions funded the prize competition. Agency staff involved in the design and conduct of the competition included program managers, fish biologists, engineers, accountants, attorneys, and public affairs specialists. Prize competition contracting services from InnoCentive provided prize competition design, outreach, and administration services.

16. Results

Reclamation received 22 submissions, awarded monetary prizes to 4 submissions and recognized 2 submissions from foreign citizens for their merit. The foreign citizens are not eligible to win a prize in accordance with the American COMPETES Reauthorization Act of 2010.

A common theme to 5 of the 6 top ranked submissions was to use piezoelectric energy harvesting to power tracking tags attached to individual fish. Piezoelectric energy harvesting uses the swimming movement of the fish to self-power the energy needed by the tracking tag. Tags are currently powered by batteries which have a short life-span, have limited signal transmission distances, and require repeated recapture of fish to change batteries or to scan the tagged fish with a signal receiver. Piezoelectric powered tags might be able to overcome both of

these limitations and reduce the need to recapture tagged fish. Other submissions identified innovative or novel new approaches to track fish, but were considered more difficult or unlikely to be transformed into practice at this time.

The 1st place submission was awarded \$11,500 for a comprehensive proposal on how to make, install, and monitor a piezoelectric tracking tag. Their proposal addressed all the technical requirements stated in the prize competition. The submission that ranked 2nd showed Reclamation how to make a fiber optic laser sensor hydrophone to better detect fish tag transmissions underwater. The 3rd prize was for \$3500, and 2 honorable mentions were awarded \$2500 to alternative designs for a piezoelectric tracking tag. The 2nd place submission and an additional honorable mention submission for a piezoelectric energy tag were not issued a monetary prize because they were submitted by foreign citizens who are not eligible to win a prize under the America COMPETES Reauthorization Act of 2010.

The next step is to develop a plan to further test, develop, and demonstrate the effectiveness of the best ideas Reclamation received. If any ideas are proven to be effective in the field, Reclamation will need to facilitate a public-private partnership to transform such technologies into manufactured supplied products.

Prize Competition Summary Table

Date Competition Opened	July 27, 2015
Date Submission Due	August 26, 2015
Date Winners Announced	November 9, 2015
#Entries	22
#Winners	4
Total Prize Purse	\$20,000
Non-Monetary Incentives	None
Operational Costs Paid by Agency	Contract costs: ~\$36,000 Reclamation labor costs: ~\$18,000
Estimated Value of Partner Contributions	\$20,000
Estimated Investment Made by Solvers	\$150,000
Measures of Success (qualitative and quantitative)	<ul style="list-style-type: none"> • Broad diversity of ideas • Solutions submitted may exceed performance of current methods • Broad diversity of contributing technical domains • Informs the focus of future research efforts

Crushed Ivory Design Challenge

1. Title

Crushed Ivory Design Challenge

2. Sponsoring Agency

U.S. Fish and Wildlife Service

3. Primary Points of Contact

Gavin Shire, Gavin_Shire@fws.gov, 703-358-2649

Danielle Kessler, Danielle_Kessler@fws.gov, 703-358-2644

4. Tagline

The U.S. Fish and Wildlife Service (USFWS), in partnership with the Association of Zoos and Aquariums (AZA), launched a global design challenge seeking creative ideas on how to use the crushed ivory from the 2013 U.S. Ivory Crush to raise public awareness of wildlife trafficking and help reduce the demand for illegal wildlife products.

5. Link to the homepage for the prize competition

<http://www.fws.gov/international/ivory-challenge.html>

6. Problem Statement

In November 2013, the USFWS destroyed approximately six tons of illegal elephant ivory – all seized as a result of law enforcement investigations and at U.S. ports of entry. The crush sent a clear message to ivory traffickers and their customers that the United States will not tolerate the illegal ivory trade. It was also designed to educate consumers and to urge them not to buy illegal ivory products.

Subsequently, the USFWS, in partnership with the AZA, launched a global design challenge that sought creative ideas on how to use the 2013 crushed ivory to raise awareness and reduce the demand for illegal wildlife products.

What were the target requirements and success criteria for selection of a winner or winners?

All participants were required to submit an application that met the following criteria:

- Does the design work to educate the public, inspire people to take action and work to reduce demand for elephant ivory and other illegal wildlife trade?
- Is the design feasible in terms of timing and budget?
- Does the design mitigate security/theft concerns?
- Does the design achieve the goal of not adding value to the crushed ivory?

7. Proposed Goals

The primary goals of the competition, of equal importance, were to create a compelling, thought-provoking and informative tool to raise awareness and educate the public about the illegal wildlife trade, while enlisting the help of new people and communities to advance elephant conservation.

8. Why a Prize?

The prize competition was preferred because it was deemed that it would help the Service connect with new and existing audiences while increasing the public's knowledge about wildlife trafficking. By asking the global public to submit design ideas, the Service acknowledged the importance of engaging citizens worldwide to participate in our efforts to end the illegal wildlife trade.

9. Participants

The Crushed Ivory Design Challenge was a global competition, open to all U.S. and foreign citizens. It invited members of the public to create a compelling, thought provoking, informative and impactful display to increase awareness about the fight against the illegal wildlife trade. Applicants included students, aspiring artists, conservationists and design professionals.

Forty-four applicants applied, mostly individuals from the United States.

10. Timeline

The competition was launched on September 15, 2014. The competition was closed on March 31, 2015. It is anticipated that the contest winners will be announced in early 2016.

11. Solicitation & Outreach

USFWS issued a news release directed to national outlets and used social media to notify the general public. Additionally, AZA assisted with outreach by distributing information throughout their broad network of zoo and aquarium partners. An event will be held to recognize the winners, either in conjunction with the announcement of their selection or the unveiling of the fabricated exhibits.

12. Incentives

Participants were offered recognition, but no cash prize or monetary incentive. The AZA offered to assist with costs associated with fabricating the winning designs. The exact cost of fabrication is unknown at this time.

13. Evaluation and Judging

The agency appointed a panel of experts who judged submissions based on the following criteria:

- Does the design work to educate the public, inspire people to take action and work to reduce demand for elephant ivory and other illegal wildlife trade?
- Is the design feasible in terms of timing and budget?
- Does the design mitigate security/theft concerns?
- Does the design achieve the goal of not adding value to the crushed ivory?

The criteria were effective in identifying the potential challenge winners.

14. Partnerships

FWS partnered with AZA, which assisted with outreach by distributing information throughout their broad network of zoo and aquarium partners. AZA will also assist with the production of the award winner's designs and will help distribute the final products to zoos, aquariums, airports, schools and other public facilities, as appropriate.

15. Resources

The challenge required approximately 160 FTE hours from USFWS, approximately 100 personnel hours from our partners, and approximately 50 personnel hours from the contest panelists. Employee hours included internal and external meetings, developing and distributing outreach products and other projects as assigned. Partner hours included participating in internal meetings and assisting with FWS outreach products. Panel hours included reviewing and judging contest submissions. Effort on the part of contestants is not estimated.

16. Results

FWS is in the process of announcing the contest winners and will have a more detailed list of measurable results after the final designs have been constructed and distributed.

Prize Competition Summary Table

Submissions Opened (Date)	September 15, 2014
Submissions Due (Date)	March 31, 2015
Winners Announced (Date)	TBD
Entries (#)	44
Winners (#)	TBD
Total Prize Purse (\$\$)	\$0
Non-Monetary Incentives	Recognition, and the opportunity to work on a compelling, highly-visible international conservation issue.
Operational Cost paid by Agency (\$\$)	Approximately 160 FTE hours.
Estimated Value of Partner Contributions (\$\$)	Approximately 100 personnel hours.
Estimated Investment Made by Solvers/ Teams (\$\$)	N/A
Measures of Success (#)	TBD