

Programmatic and Financial Report Sumatran and Javan Rhino Conservation Programs for the Period 1 July 2015 – 31 December 2016

Submitted to the American Association of Zoo Keepers Bowling for Rhinos Program

15 May 2017

The International Rhino Foundation is grateful for the continued, generous support of the American Association of Zookeepers' (AAZK) Bowling for Rhinos program, which contributed a total of \$234,837 in 2016 to support Rhino Protection Units (RPUs) operating in three Indonesian National Parks – Bukit Barisan Selatan, Way Kambas, and Ujung Kulon. This donation covers roughly one quarter of the operations costs to support 100 (including 32 new) RPU field positions across these parks; these funds are used for the RPUs' salaries and benefits, as well as operations, transportation, equipment, and guard post maintenance.

IRF's on-the-ground NGO partner, YABI (Yayasan Badak Indonesia or the Rhino Foundation of Indonesia), works in tandem with Indonesia's Ministry of Environment and Forestry, which is responsible for preserving the country's biodiversity, to operate the RPUs. We are confident that

RPU's presence in these protected areas since is the reason why there has been **a zero-level of rhino poaching in all three parks for a decade**. The generous support from the AAZK Bowling for Rhinos program has been critical to sustaining Javan and Sumatran rhinos in Indonesia, which are found nowhere else on Earth.

The RPU program's success, due in large part from the sustained support from the AAZK, has helped the program to become a model of protection in Asia. AAZK support helped IRF this year to leverage additional support



from the US Fish and Wildlife Service (UWFWS), which granted IRF additional funds to recruit, train, and deploy eight new 4-man RPUs; 32 new RPUs and six support staff were hired at the end of 2016. The additional RPUs have boosted vital protection in Bukit Barisan Selatan and Way Kambas National Parks.

From July 25 through August 10, 2016, IRF hosted four AAZK Bowling for Rhinos winners on a 16-day trip to Indonesia: Ann Knutson (San



Diego Zoo) and her husband Carey Knutson, Allycia Darst (Lincoln Park Zoo), and Caitlinn O'Brien (Lincoln Park Zoo). IRF Executive Director Dr. Susie Ellis and IRF Asian Rhino Coordinator, Dr. Bibhab Talukdar and Program Assistant Gloria Goeres led the group. (Photo of the group with the IRF staff and Bukit Barisan Selatan National Park RPUs above).

SUMATRAN RHINO CONSERVATION PROGRAM

At the turn of the 20th century, the Sumatran rhino (*Dicerorhinus sumatrensis*) could be found quietly roaming the jungles from the foothills of the Himalayas through Southeast Asia to the islands of Borneo and Sumatra. Since then, it has disappeared from the jungles of India, Bangladesh, Myanmar, Thailand, and Malaysia, and can now be found only in three parks on the island of Sumatra in Indonesia and in a tiny unprotected area in Kalimantan, on the island of Borneo. The species has declined more than 70% just in the last three decades due to habitat fragmentation, human encroachment into rhino habitat, and a spike in the demand for rhino horn, particularly in Vietnam and China. The Sumatran rhino is categorized as Critically Endangered on the IUCN Red List of Threatened Species and because of the rate of its decline, is considered the most endangered large mammal on Earth.

Bukit Barisan Selatan (south west) and Way Kambas (south east) National Parks in Southern Sumatra, Indonesia; Sumatran rhinos are also found in Gunung Leuser National Park in the North.



During a series of planning meetings in August 2015, experts estimated that fewer than 100 Sumatran rhinos survive in fragmented populations in Bukit Barisan Selatan (BBS), Gunung Leuser, and Way Kambas National Parks, with a tiny (3-8 individuals) population living in east Kalimantan. Of concern is that even across these four areas, these animals are split into at least ten subpopulations; four groups are thought to number fewer than five individuals. In addition to the ever-looming threat of poaching, small population effects (such as reduced reproduction and the Allee effect) and human encroachment remain very real threats for the remaining Sumatran rhino populations. Further complicating the matter is that like most rhinos, unless female Sumatran rhinos become pregnant, there is a propensity to develop uterine tumors which in turn prevent reproduction. The longer females go without becoming pregnant, the more likely they are to develop this pathology. The 10-year strategic plan that came out of these meetings notes the most critical actions to ensure the Sumatran rhino's survival are: (1) to safeguard their protection, (2) to consolidate existing populations, (3) to increase public awareness, and (4) to expand the managed breeding program at the Sumatran Rhino Sanctuary in Way Kambas National Park.

Bukit Barisan Selatan National Park (BBS)

BBS is Sumatra's third largest protected area, covering 3,345 km² along the southwestern edge of the island. In addition to the iconic Sumatran tiger, the Sumatran elephant, and the Sumatran rhino, it is home to 38 other threatened species of amphibians, reptiles, birds, and mammals (Appendix 1). The current estimate for Sumatran rhinos in BBS is 16-24 individuals, however, a population survey of the

park is currently underway to try to determine accurate numbers. We are deeply concerned that despite protection, the population continues to decline.

Eleven RPUs presently patrol the park, including the additional four funded by the USFWS. From 1 July 2015 through 31 December 2016, these RPUs spent an average of 14.72 days each month on patrol and survey, up from an average of 14.27 days per month during the previous reporting period. Teams logged a total of 5,528 km (3,435 miles) patrolled. The park's long boundary, mountainous terrain, and many potential



Illegal logging operation found in BBS

access points for illegal activity make BBS the most physically demanding, and technically difficult park to patrol.

Illegal activities declined from the second to the third quarter of 2016, and again from the third to the fourth. Most these illegal activities are a result of the high rate of encroachment. The long narrow shape of the park means that it has a very long boundary, which makes it difficult to protect and creates many opportunities for encroachment. The intense population pressure pushes agriculture, mainly coffee, up into the park boundaries. A summary of findings from 1 July 2015 through 31 December 2016 is in the table below.

SUMMARY OF FINDINGS JULY 2015 – DECEMBER 2016		
DIRECT RHINO SIGHTINGS	1	
ENCROACHMENT INCIDENTS	166	
ILLEGAL LOGGING	17	
NON-TIMBER FOREST PRODUCT (NTFP) THEFT	7	
RHINO TRAPS DISCOVERED/DESTROYED	0	
OTHER TRAPS DISCOVERED/DESTROYED	105	

While in BBS, the AAZK 'Bowlers' (as they are fondly called by the Indonesian staff) heard several presentations from the RPUs and had a chance to interact, spending the night at the "Camp 50" RPU base camp. They also hiked in the park where they saw *Rafflesia arnoldii*, the largest flower on Earth. Each member of the trip was invited to plant a tree in the park in the area now known as 'Bowler's Alley'.



Ann Knutson (top left) and Caitlinn O'Brien (top right) planting their trees at "Bowler's Alley" Allycia Darst with the *Rafflesia* flower (bottom)

Way Kambas National Park

The flat terrain and lowland forests of Way Kambas National Park (WKNP), which covers approximately 1,000 km², lie in the southeastern corner of Sumatra. In addition to Sumatran rhinos, WKNP is home to 36 other threatened amphibian, reptile, bird, and mammal species (Appendix 2), including Sumatran tiger and Sumatran elephant. The current estimate for Sumatran rhinos in WKNP is 25-35 individuals; this population is the only one that is thought to be slowly growing.

Nine RPUs patrol WKNP (including the four new units funded by USFWS). From 1 July 2015 – 31 December 2016, the WKNP RPUs spent an average of 13.84 days each month on patrol and survey, logging a total of 9,546 km – 5,932 miles - nearly one and a half times the distance travelled from the previous reporting period.

SUMMARY OF FINDINGS JULY 2015 – DECEMBER 2016		
DIRECT RHINO SIGHTINGS	5	
ENCROACHMENT INCIDENTS	104	
TIMBER THEFT	20	
NON-TIMBER FOREST PRODUCT (NTFP) THEFT	7	
RHINO TRAPS DISCOVERED/DESTROYED	0	
OTHER MAMMAL TRAPS DISCOVERED/DESTROYED	188	

RPU findings during this period can be found in the table below.

Although there has been no rhino poaching in the park since 2006, it is a persistent threat. In the past few years, RPUs have more frequently discovered and destroyed heavy-cable snares that are routinely set for large mammals, including tigers. In February 2016, a poached elephant carcass was found in the park. The National Park authority, assisted by the RPUs, has successfully cleared the southwestern portion of the park of encroachers; it is being re-forested with rhino browse plants in the hopes of making more area – and food – available to the rhinos.



Poached elephant carcass discovered by WKNP RPUs – February 2016



RPUs removing snares in WKNP - wild pig snare (left) and mouse deer snare (right)

Despite parts of the park being low-lying and swampy, the dry season desiccates much of Way Kambas National Park, greatly increasing fire risk. This threat has is of great concern for wildlife conservation. In 1997, a fire burned more than 70% of the park, and the threat of future fires shows no sign of abatement. RPUs must take on the additional duty of fighting fires during the dry season. Many fires, set illegally to draw the RPUs away from the forest, become a distraction from patrolling and raise concern for increased encroachment and



RPUs putting out a fire in Way Kambas

poaching. Fires are also an indication of increased encroachment and illegal agriculture as fires are used to prepare an area for future planting.



The 'Bowlers' and IRF staff pose with one of the rhinos at the SRS

While in WKNP, the BFR team had the opportunity to go out on the Way Kanan River with the RPUs in their patrol boat and to trek in the park. The group got to interact with all seven Sumatran rhinos at the Sumatran Rhino Sanctuary (SRS), including Harapan, who was moved to the SRS from the Cincinnati Zoo in November 2015, and calf Delilah, born in May 2016. The team also had a chance to observe veterinary protocols such as ultrasound, and to interact with the veterinary and keeper staff.

Javan Rhino Conservation Program

There is one population of Critically Endangered Javan rhinos (Rhinoceros *sondaicus*) in the world, surviving only in Indonesia's Ujung Kulon National Park (UKNP). Just like Sumatran rhinos, the Javan rhinos' habitat once covered a greater expanse, including India, Bangladesh, Myanmar, Laos, Thailand, Malaysia, Cambodia, China, and Vietnam. Covering 762 km² of terrestrial habitat, UKNP is a peninsula and island group located in Banten Province in extreme western Java. This World Heritage Site is home to 30 threatened vertebrate species (Appendix 3), including Javan banteng and Javan leopard.



The park is bordered by water to the north, west and south (map above). The region along its eastern boundary is rich, agricultural lands, as well as one of Indonesia's most heavily populated regions. This intense pressure on this tropical forest habitat and wildlife increases annually as continued threats, including a low level of illegal activities (e.g., fishing, birdtrapping, small-scale timber extraction, non-timber forest product gathering), still occur within the park boundaries.

Monitoring Javan Rhinos

YABI, the UKNP authority, and/or WWF-Indonesia have monitored Javan rhinos since 1961, more recently including the use of video camera traps. In 2011, IRF and WWF purchased 140 video camera traps and donated them to the UKNP so that the entire park could be surveyed using this methodology. In 2015, this survey was re-created, and data from these cameras show that the population is slowly growing, now estimated to be between 61 and 63 individuals, including at least four juveniles. These data were analyzed by the UKNP camera trap



Javan rhino photo by Stephen Belcher

team and verified by a small task force from the IUCN Asian Rhino Specialist Group.

Rhino Protection

One of main reasons that Javan rhinos survive in UKNP is because of around-the-clock monitoring from Rhino Protection Units (RPUs) and government personnel. At this time, five, four-man RPUs currently patrol UKNP.

During this reporting period, UKNP RPUs spent an average of 15.95 days each month on patrol and survey, logging a total of 9,150 km (5,686 miles). RPUs found poaching evidence of sea turtle, birds, bagan (temporary shelters built above the water for fish and shrimping), as well as honey production. Results from this reporting period are included in the table below.

SUMMARY OF FINDINGS JULY 2015 – DECEMBER 2016	
DIRECT RHINO SIGHTINGS	12
ENCROACHMENT INCIDENTS	5
TIMBER THEFT	10
NON-TIMBER FOREST PRODUCT (NTFP) THEFT	0
RHINO TRAPS DISCOVERED/DESTROYED	0
OTHER MAMMAL TRAPS DISCOVERED/DESTROYED	1
OTHER TRAPS DISCOVERED/DESTROYED	9

The menacing threat of poaching is ever-present. While there has been no recorded poaching of a Javan rhino in Indonesia this century, and to our knowledge, no currently existing international trade in Javan rhino horn, we fear the escalating poaching crisis in Africa may spill over into Indonesia. We remain resolved to continue our protection and monitoring and to ramp up efforts in UKNP over the long-term. Support from the AAZK Bowling for Rhinos program has been, and remains, essential to ensuring this species' survival.

Javan Rhino Study and Conservation Area

With the geographical constraints of the park's peninsular location, conservation experts have long believed that Ujung Kulon has reached its carrying capacity for Javan rhinos. In response, IRF, YABI, and the UKNP authority kick started an effort in 2010 to create additional safe and useable habitat for rhinos. By 2015, construction of the Javan Rhino Study and Conservation Area (JRSCA) was finally complete. This additional 5,000hectare habitat rehabilitation and protected area development is in the Gunung Honje region along the park's eastern boundary. As part of the project, the Government of Indonesia took



Photo of Javan rhino with wound on right ear, caught on camera by one of the UKNP RPUs

the critical step of removing Illegal settlements from Gunung Honje, where forests had been converted to agricultural lands, and establishing a special traditional use zone. YABI has also employed local citizens to erect an 8.2-km perimeter fence (North area length 5.4 km, South area length 2.8 km) to protect the rhinos from diseases carried by domestic cattle and to construct a new RPU base camp and several guard posts.

The park is plagued by an invasive species of palm (*Arenga obtusifolia*) that is not eaten by rhinos and suppresses the growth of various food plant species. Research over the past few years on *Arenga* removal has demonstrated that: (1) both mechanical and chemical palm eradication methods work equally well, have negligible environmental impacts, and are comparable in cost; (2) mechanical clearance methods provide greater employment opportunities for local people; (3) the natural re-vegetation process negates the need to grow and plant seedlings; (4) of the dozen predominant plant species that most readily reestablish themselves in cleared plots, more than 90% are Javan rhino food plants; and (5) the rate of plant re-growth is incredibly rapid.



RPUs dismantle an illegal logging operation in UKNP

For the past 4 years, YABI has employed >120 local people to remove *Arenga* palm in the JRSCA. Working in the JRSCA area allows local people to benefit from the park and to learn more about Javan rhino conservation efforts. Without the sun-blocking effect of *Arenga*, rhino food plants can regenerate rather quickly. Even with only 78 hectares cleared, the JRSCA area already has attracted nine new rhinos, including a cow and her calf; this number represents 15 percent of the total population. Camera traps regularly document rhinos' use of the JRSCA and RPUs document many rhino footprints both on the JRSCA border and within the JRSCA itself.

While in UKNP, the BFR team got to ride the RPU patrol boat to Peucang Island where they were greeted by flying foxes in the sky and a wild pig on the beach. The group got to see Javan banteng and went canoeing on the Cigenter River with the RPUs. The group also got to visit the JRSCA and to see the habitat rehabilitation work being carried out there. The group got to hike through along the beach and enjoyed fresh coconut water upon their return (see photos below).



Conclusion

The RPU teams made a great deal of progress throughout 2016, thanks in large part to AAZK's continued generosity. The International Rhino Foundation is profoundly grateful for the support from the AAZK's Bowling for Rhinos program, which has enabled us to accomplish the activities described in this report. We value our partnership with the AAZK tremendously and know how committed keepers are to BFR, and how hard they work to raise BFR funds. We welcome any questions and would be happy to have a conference call at a mutually agreeable time if you would like more information. Again, thank you!



Financial Report – period 1 July 2015 - 31 December 2016 Indonesian Rhino Conservation Program Submitted to the American Association of Zoo Keepers Bowling for Rhinos Program

INCOME	
Carryover balance reported 30 June 2015	\$24,466.63
AAZK Contribution received 22 December 2015	\$256,034.77
AAZK Contribution received 22 December 2016	\$234,837.46
TOTAL	\$515,338.86
EXPENDITURE	
AAZK Contribution to Operating Expenses for Bukit Barisan Selatan & Way Kambas National Parks RPUs	
1 July 2015 – 31 December 2016	\$272,696.00
AAZK Contribution to Operating Expenses for Ujung Kulon National Park RPUs	
1 July 2015 – 31 December 2016	\$ 90,345.00
TOTAL	\$ 363,041.00
Balance in IRF AAZK/RPU Allocated Fund Accounts to be used through 31 December 2016	\$ 152,297.86

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Susie Ellis, PhD Executive Director, International Rhino Foundation 30 April 2017

Appendix 1: Threatened Terrestrial Vertebrates of Bukit Barisan Selatan National Park

Scientific Name	Common English Name	Assessment
Reptiles		
Ophiophagus hannah	King cobra	Vulnerable
Birds		
Alcedo eurvzona	Blue-banded kingfisher	Vulnerable
Caprimulaus concretus	Sunda nightiar	Vulnerable
Centropus rectunguis	Short-toed coucal	Vulnerable
Cyornis caerulatus	Sunda blue flycatcher	Vulnerable
Lophura erythrophthalma	Crestless fireback	Vulnerable
Lophura inornata	Salvadori's pheasant	Vulnerable
Melanoperdix niger	Black partridge	Vulnerable
Nisaetus nanus	Wallace's hawk-eagle	Vulnerable
Cairina scutulata	White-winged wood duck	Endangered
Ciconia stormi	Storm's stork	Endangered
Carpococcyx viridis	Sumatran ground cuckoo	Critically Endangered
Mammals		
Aonyx cinerea	Asian small-clawed otter	Vulnerable
Arctictis binturong	Binturong	Vulnerable
Capricornis sumatraensis	Sumatran serow	Vulnerable
Dyacopterus brooksi	Brook's Dyak fruit bat	Vulnerable
Helarctos malayanus	Malayan sun bear	Vulnerable
Hemigalus derbyanus	Banded civet	Vulnerable
Lutrogale perspicillata	Smooth-coated otter	Vulnerable
Macaca nemestrina	Pig-tailed macaque	Vulnerable
Maxomys rajah	Rajah spiny rat	Vulnerable
Maxomys whiteheadi	Whitehead's spiny rat	Vulnerable
Neofelis diardi	Sunda clouded leopard	Vulnerable
Nesolagus netscheri	Sumatran striped rabbit	Vulnerable
Nycticebus coucang	Greater slow loris	Vulnerable
Petinomys genibarbis	Whiskered flying squirrel	Vulnerable
Petinomys setosus	Temminck's flying squirrel	Vulnerable
Rusa unicolor	Sambar	Vulnerable
Tarsius bancanus	Horsfield's tarsier	Vulnerable
Cuon alpinus	Dhole	Endangered
Cynogale bennettii	Sunda otter civet	Endangered
Hylobates agilis	Agile gibbon	Endangered
Manis javanica	Malayan pangolin	Endangered
Pteromyscus pulverulentus	Smoky flying squirrel	Endangered
Symphalangus syndactylus	Siamang	Endangered
Tapirus indicus	Malayan tapir	Endangered
Dicerorhinus sumatrensis sumatrensis	Sumatran rhinoceros	Critically Endangered
Elephas maximus sumatrensis	Sumatran elephant	Critically Endangered
Panthera tigris sumatrae	Sumatran tiger	Critically Endangered

Appendix 2: Threatened Terrestrial Vertebrates of Way Kambas National Park

Scientific Name	Common English Name	Assessment
Amphibians		
Limnonectes macrodon	Fanged River frog	Vulnerable
Reptiles		
Ophiophagus hannah	King cobra	Vulnerable
Birds		
Alcedo eurvzona	Blue-banded kingfisher	Vulnerable
Caprimulgus concretus	Sunda nightjar	Vulnerable
Centropus rectunquis	Short-toed coucal	Vulnerable
Cyornis caerulatus	Sunda blue flycatcher	Vulnerable
Leptoptilos javanicus	Lesser adjutant	Vulnerable
Lophura erythrophthalma	Crestless fireback	Vulnerable
Melanoperdix niger	Black partridge	Vulnerable
Nisaetus nanus	Wallace's hawk-eagle	Vulnerable
Cairina scutulata	White-winged wood duck	Endangered
Ciconia stormi	Storm's stork	Endangered
Tringa guttifer	Nordmann's greenshank	Endangered
Mammals		
Aonyx cinerea	Asian small-clawed otter	Vulnerable
Arctictis binturong	Binturong	Vulnerable
Dyacopterus brooksi	Brook's Dyak fruit bat	Vulnerable
Helarctos malayanus	Malayan sun bear	Vulnerable
Hemigalus derbyanus	Banded civet	Vulnerable
Lutrogale perspicillata	Smooth-coated otter	Vulnerable
Macaca nemestrina	Pig-tailed macaque	Vulnerable
Maxomys rajah	Rajah spiny rat	Vulnerable
Maxomys whiteheadi	Whitehead's spiny rat	Vulnerable
Niviventer cremoriventer	Dark-tailed tree rat	Vulnerable
Nycticebus coucang	Greater slow loris	Vulnerable
Petinomys genibarbis	Whiskered flying squirrel	Vulnerable
Petinomys setosus	Temminck's flying squirrel	Vulnerable
Rusa unicolor	Sambar	Vulnerable
Tarsius bancanus	Horsfield's tarsier	Vulnerable
Cynogale bennettii	Sunda otter civet	Endangered
Hylobates agilis	Agile gibbon	Endangered
Manis javanica	Malayan pangolin	Endangered
Pteromyscus pulverulentus	Smoky flying squirrel	Endangered
Symphalangus syndactylus	Siamang	Endangered
Tapirus indicus	Malayan tapir	Endangered
Dicerorhinus sumatrensis sumatrensis	Sumatran rhinoceros	Critically Endangered
Elephas maximus sumatrensis	Sumatran elephant	Critically Endangered
Panthera tigris sumatrae	Sumatran tiger	Critically Endangered

Appendix 3: Threatened Terrestrial Vertebrates of Ujung Kulon National Park

Scientific Name	Common English Name	Assessment
Amphibians		
Huia masonii	Javan torrent frog	Vulnerable
Kalophrynus minusculus		Vulnerable
Limnonectes macrodon	Fanged River frog	Vulnerable
Reptiles		
Ophiophagus hannah	King cobra	Vulnerable
Python bivittatus	Burmese python	Vulnerable
Birds		
Centropus nigrorufus	Javan coucal	Vulnerable
Leptoptilos javanicus	Lesser adjutant	Vulnerable
Lophura erythrophthalma	Crestless fireback	Vulnerable
Mulleripicus pulverulentus	Great slaty woodpecker	Vulnerable
Pavo muticus	Green peafowl	Endangered
Sturnus melanopterus	Black-winged starling	Critically Endangered
Mammals		
Aonyx cinerea	Asian small-clawed otter	Vulnerable
Arctictis binturong	Binturong	Vulnerable
Lutrogale perspicillata	Smooth-coated otter	Vulnerable
Niviventer cremoriventer	Dark-tailed tree rat	Vulnerable
Nycteris javanica	Javan slit-faced bat	Vulnerable
Rusa timorensis	Javan deer	Vulnerable
Trachypithecus auratus	Javan leaf monkey	Vulnerable
Bos javanicus	Javan banteng	Endangered
Cuon alpinus	Dhole	Endangered
Hylobates moloch	Silvery gibbon	Endangered
Manis javanica	Malayan pangolin	Endangered
Nycticebus javanicus	Javan slow loris	Endangered
Presbytis comata	Javan surili	Endangered
Panthera pardus melas	Javan leopard	Critically Endangered
Rhinoceros sondaicus	Javan rhinoceros	Critically Endangered