

The rehabilitation of black bear cubs



Photo 1: Black Bear Cub at the CEI (CEI, 2018)



Cochrane Research Institute
Where Ideas Become reality

The Rehabilitation of black bear cubs

The document deals with the rehabilitation of black bear cubs and provides how this is done in Canada and USA

Internship project in Animal Management at the Van Hall Larenstein
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1 Introduction

The American Black bear (*Ursus americanus*) is native to 12 provinces in Canada, 40 states of the United States and 6 states of northern Mexico. The present range covers 65 % - 75 % of the historical range (The IUNC Red List of Threatened Species, 2017).

The black bear population was widespread over the historical range before the first settlers brought with them the European behaviours and perceptions. With this ethical and moral European changes, the wilderness was seen as a dangerous place and every predator and carnivore, was seen as a threat to humans, livestock, crops and their future (Black Bears, n.d.).

Predators, including black bears, were extensively hunted and the human aim was their eradication to save lives. Humanity expanded and wildlife decreased. After a long period of trying to eradicate wildlife through uncontrolled hunting, burning woodlands and implementation of commercial land use, humans slowly understood the importance of the environment and the balance between prey and predators. Humans allowed wild habitat to return and gave black bears the chance to return as well (Black Bears, n.d.).

When you look at the historical period during the European expansion, black bear seems the only species to have successfully stayed around the humans. Predators like wolves, grizzlies and mountain lions were all killed during this period. These species are not as skiddish as the black bear and they're more out in the open (Andirondack Daily Enterprise, 2017).

The historical range of black bears once covered the entire continent in all inhabitable patch and forests (a-z animals). This is shown in Figure 1.

The habitat types of black bears can vary but the species live primarily in temperate and boreal forests, but occurs in subtropical and subarctic areas too (The IUNC Red List of Threatened Species, 2017).

Bears continue to inhabit most of their historical range in Canada which is shown in Figure 2, but they had and have threats. Nearly 216,000 square kilometres of forests in Canada were disturbed or fragmented from 2000 to 2013, causing significant roadblocks to population stability among dependent animals (Global News, 2017).

In the United States (U.S.) the bears extirpated from large portions of their historical range, caused by overexploitation and habitat loss. That is shown in Figure 1, Figure 2 and Figure 3 (Brian K. Scheick, Walter McCown, 2014).

Figure 5 shows the primary loss of natural forest in the U.S between the years 1620 and 1920. Figure 4 shows the forest loss of total forest in a time range of 12 years. Only in this 12 years the forest loss in the U.S decrease for 6,25 to 12%.

The eastern forest in the U.S is almost gone and the natural habitat of bears decreased with its loss. On Figure 2 it is shown that the primary habitats of black bears are found in the north of North America (Canada), in the east and west of the U.S. Figure 6 shows that in Canada a lot of Boreal forest habitats still exist, which explains why a lot of bears are there. In the east and west of the U.S temperate forest are found. These 2 main habitats are the major habitats for black bears and the most similar to their natural habitat. In central America grassland is the most

common habitat type. That explains that they're not as present there as in the other regions of the U.S. That is shown in Figure 2.

In 1871 the population of Canada amounted 3,5 million people. The population increased up to 35,151,728 people until the 10 of May 2016 (Statistics Canada, 2017). The total population in the United States was estimated at 324.3 million people in 2016. In the year of 1900, the United States had a population of 76.1 million people (Trading Economics, 2018). The population increased and is still increasing and the needs of humans are growing and more wildlife is destroyed (WWF, n.d.).

Consequently, reasons for the declining of the black bear are habitat loss, climate change, pollution, industrial activity, unsustainable harvesting and a population which is expanding (WWF, n.d.).

Most of the species are affected by these human threats and decline rapidly. There are species which aren't affected that much by the threats and don't decline rapidly. Studies showed that species, which can adapt to these human-cause challenges, survive better but because of their adaptation they have a bigger threat through the human-animal conflict (Global News, 2017). The black bear is one of this species.

Black bears are omnivores. This means that they feed on a variety of plant and animal matter. This includes insects, berries, nuts, fruits, eggs and vertebrates from fish to mammals. They eat human-related food, which includes garbage, birdseeds and agriculture products. Black bears can adjust their diet to the circumstances which makes them specialist in adaptation to different habitat types and areas close to humans (The IUNC Red List of Threatened Species, 2017).

Black bears survive the times of cold and poor food because of hibernation. They're not real hibernators but enter a state of lethargic sleep. By the beginning of late summer or early fall they begin to prepare themselves for hibernation and eat 3 times more than normal and produce fat resources. They try to build up to one-third of their normal weight. This status is called hyperphagia. In their den they go into the hibernation mode. During this state their heart rate drops and their metabolism decrease to use only the half of the energy they normally would use from their food resources (Taylor, D., 2006).

The birth of normally 2 or 3 cubs occurs during hibernation in January or February in the den. The cubs are blind at first but find their own way to the nipples of the mother bear. The mother is in her hibernation status so she is not awake. The family leaves their den in mid spring. After leaving the den, the cubs can walk and scout their environment with their mother. They're in their learning process, observe their mother, watching what she is doing and try to imitate it. During the first, or 1 ½, year the bears are very social, the cubs play, learn and learn how to behave together. They prepare themselves together for the following hibernation. After the first winter, they go separate ways (Taylor, D., 2006).

The species is ranked in the Red List Category in "Least Concern" (The IUNC Red list of Threatened Species, 2017). As Figure 1 shows, as the natural habitat diminished and legal hunting is the primary way to manage black bears.

Black bear cubs become orphaned when they are separated from their mother or when their mother is killed. In most cases it's illegal to kill a female bear with cubs. But it happens again and again because it's very difficult to see the difference between a female and a male. Mother bears send their cubs often on top of trees, when they search for food or when they feel danger. A

single bear does not mean that the bear has no cubs around. Mother bears are killed because of human threats. Infrastructures like streets and trains, illegal poaching, regulate and not-regulate hunting and human-animal conflicts separates and kill bear mothers (Beecham J., 2006).

Humanity is growing, and so the space they need grows too. Habitat fragmentation (agriculture), less habitat to live and the decreasing of resources drives bears closer to humans and they go on properties and into cities to find food (for example; garbage, bird-food). As a result, human-animal conflicts occur. Bears are killed or replaced. The cubs stay behind.

After a bear cub become orphaned, humans have different ways to handle them.

The first option is to leave the cub in the wild where it was found. This is a viable option when the cubs are old enough and when they have enough fat reserves. (Beecham J., 2006).

The second option is to add the cub to other cubs, and let the mother adopt the cub. This can be a successful method, but it must have happened during the hibernation. It's difficult to find hibernating female black bears. (Taylor, D., 2006).

The third option is to place the cub in a permanent place in captivity like zoos or sanctuary's. This is the least desirable option for many people who care in the welfare of orphaned cubs (Beecham J., 2006). The cubs will be present for the public and they are used for educational use (the educational use is questionable, animals in captivity can't be educational because they're native to the wild). These bears will never have the chance to live in the wild to be wild. They become rehabbed but they never are released (Beecham J., 2006).

The fourth option is to bring the cubs to a Rehabilitating facility. The cubs can be accepted, rehabilitate and release back into the wild. The aim of a rehabilitation centre is to save and rehab the bear cubs and built them up for a life in the wild (Beecham J., 2006).

The last option is to euthanize them (Beecham J., 2006).

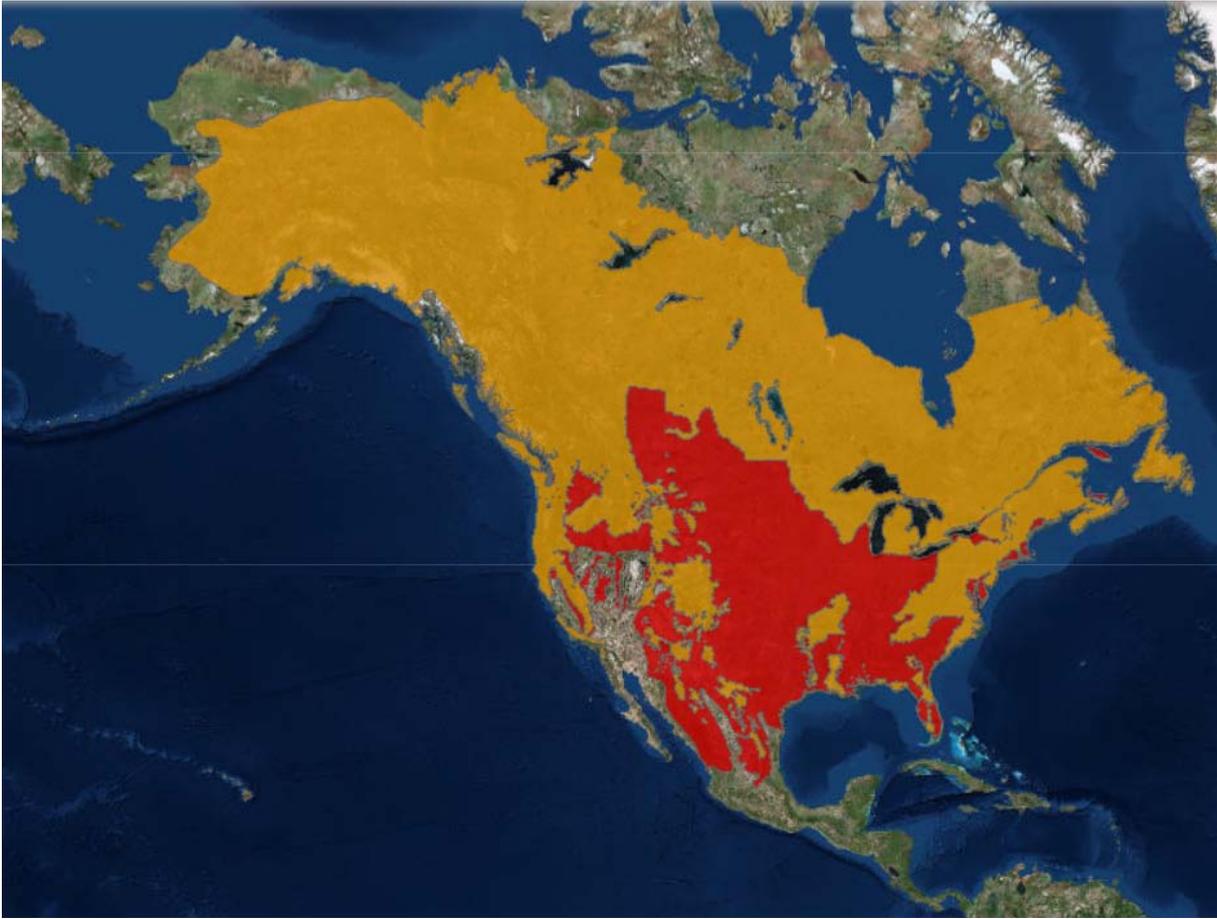


Figure 1: Range Map from the American Black Bear (ursus americanus). Orange shows the still "Extant" part and Red the area where the black bears "Extinct" over the last years (Red List ,2017)

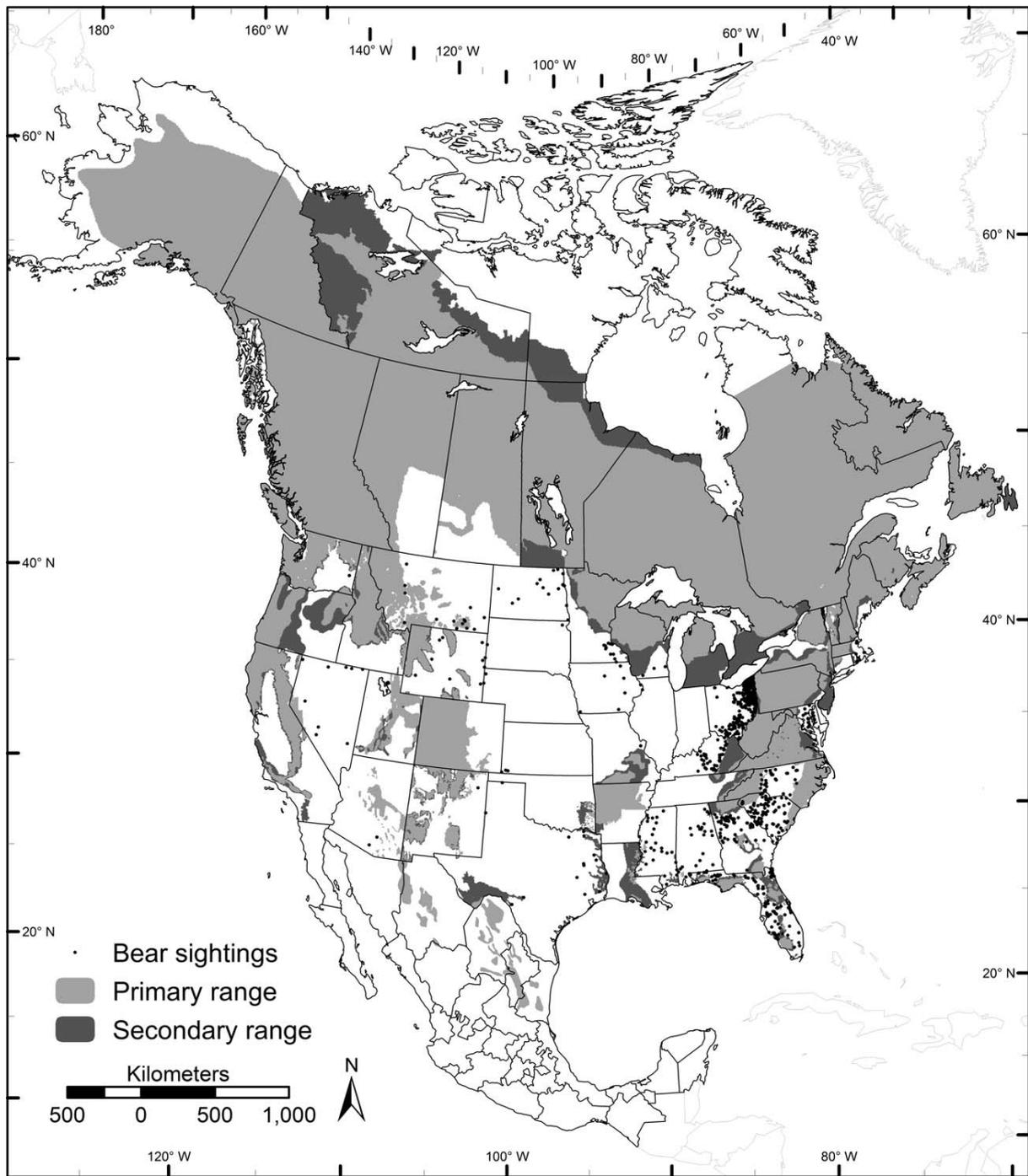


Figure 2: Primary and secondary range of the American black bear in North America between 2009 and 2012. Bear sightings reported between 2006 and 2010 outside of range(Brian K. Scheick1 and Walter McCown, n.d.)

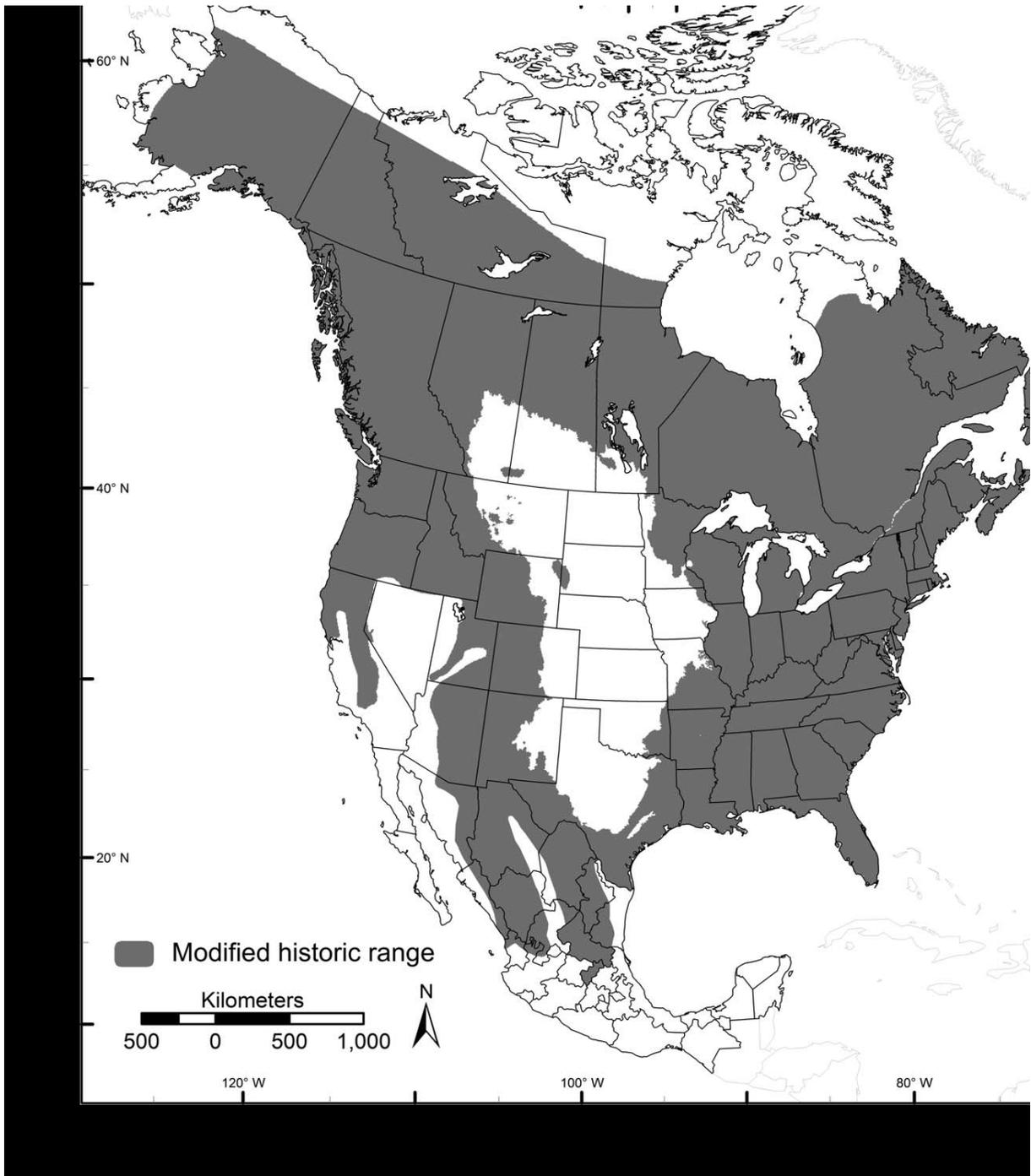
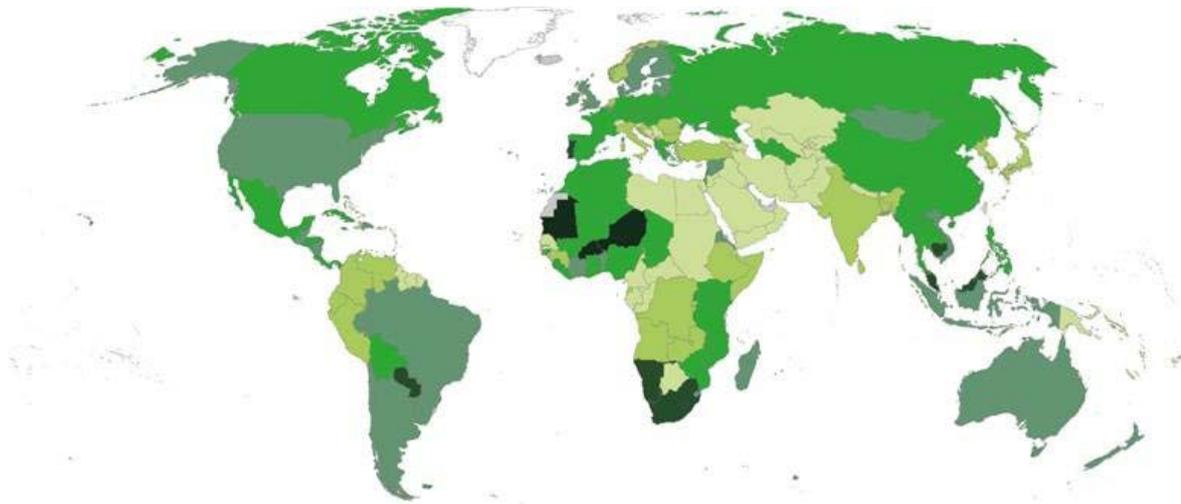


Figure 3: Historical range of the black bear in North America(Brian K. Scheick1 and Walter McCown, n.d.).



Forest loss of total forest (%), 2000-2012



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Figure 4: Forest loss of total forest. Canada lost 3,125 - 6,25 % and The United States lost 6,25 - 12,5% of their total forest(Science Daily, 2015).

Area of primary forests in the United States (lower 48)
(around 1620, top; and 1850 middle; 1920, bottom)

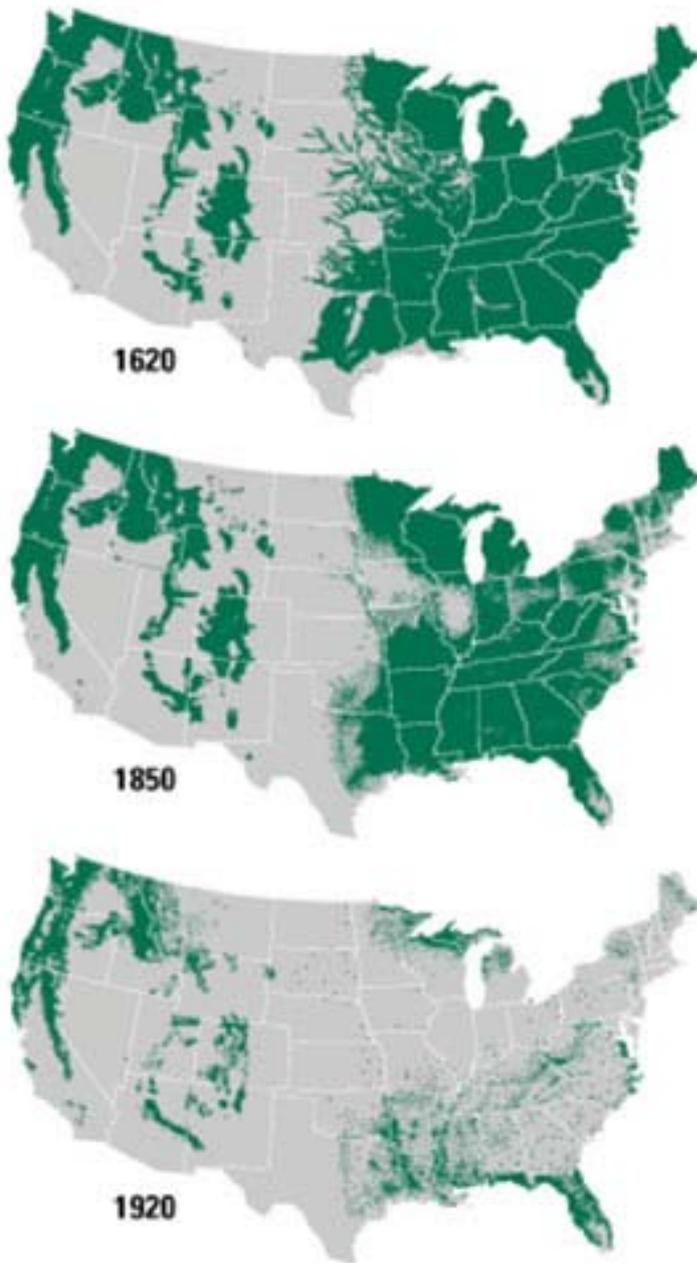


Figure 5: Area of primary forest in the United States from 1620 to 1920(Environmental Studies 110, n.d.).



Figure 6: Major Habitats of North America (nabci State of North America's Birds 2016, n.d.).

2 Provincial (Canada) and State (USA) Black Bear Rehab

This Chapter deals with the legislation and permitting processes from 12 Canadian provinces and 40 states in America, where Black bears are present, and how orphaned black bear cubs are handled. What happens when an orphaned black bear cub is found, are their facilities and Centers which take them or not, are Centers allowed to rehabilitate them and release them back into the wild?

In this Chapter the information is collected per province or state.

2.1 Canada

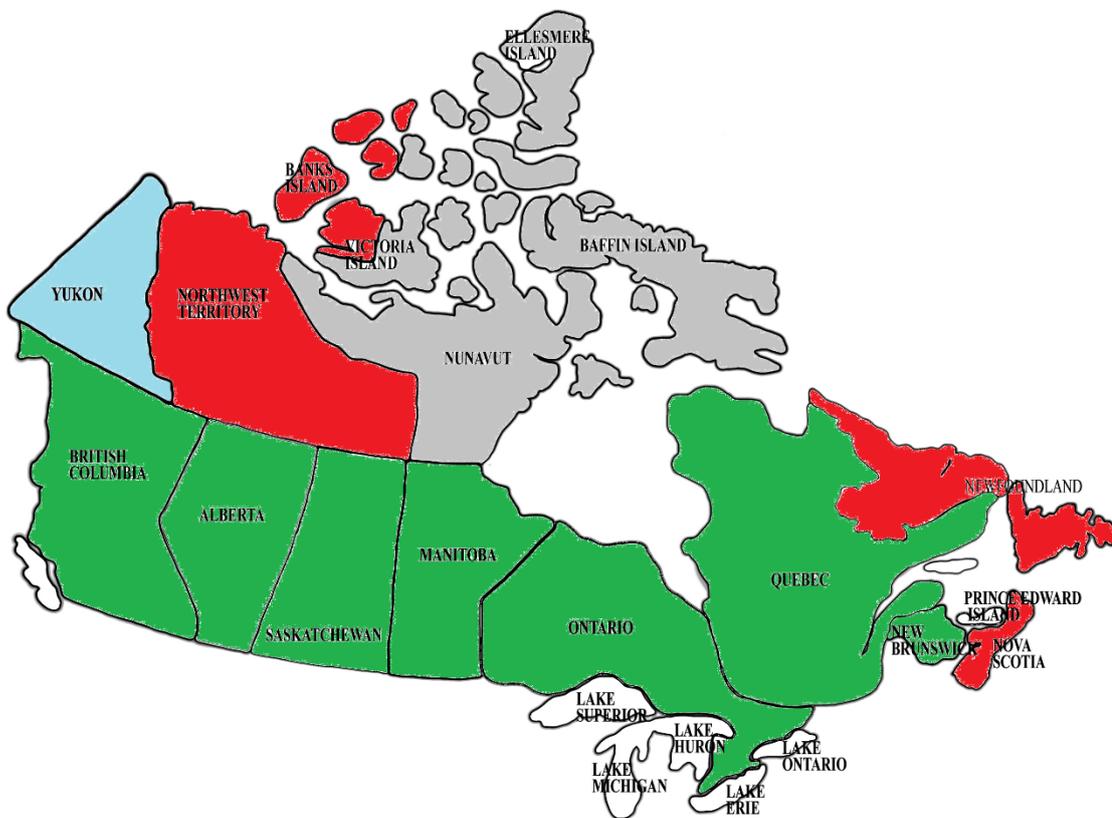


Figure 7: Overview orphaned Black Bear Cub rehabilitation in Canada. Green = Provinces where orphaned black bear cub rehabilitation is allowed, Red = Provinces where orphaned black bear cub rehabilitation is not allowed, Blue = Provinces let orphaned black bear cubs rehabilitate out-of-state or let them in captivity, Grey = No information (Printerest, n.d.).

2.1.1 Quebec

The Québec Government, specific the Wildlife officers, are responsible for the conservation of wildlife and wildlife habitats. They are responsible for the Acts and Regulations that govern wildlife and wildlife habitats in Québec, providing protection and raising public awareness about wildlife issues (Government of Québec, 2018).

2.1.1.1 Observation de l'Ours Noir

The Center accept, transfer and release black bear cubs back into the wild. The center tries to give them the best possibility to adapt easily to their natural habitat that they can better survive. When the cubs are between 3 to 4 months they are housed in the nursery. When they are 6 months old they're living in a pen, which representing their natural environment. Among other things they should learn here to fend for their own food. When the winter begins, they go into hibernation. After their first hibernation, at the Center, they're going to release, at age of 1 and a half, back into the wild. When the cubs are released back into the wild, wildlife officers release them in a unknow place for the public (Observation de l'Ours Noir, n.d.).

2.1.2 Ontario

In Ontario there are bear rehabilitation facilities. These facilities accept out-of-province bears, which must be returned to the origin province for release. The two facilities are authorized annually by the Ontario Ministry of Natural Resource (OMNR) to rehabilitate and release orphaned black bear cubs (CBC Radio-Canada, February 2018).

2.1.2.1 Bear with Us Sanctuary and Rehabilitation Center

Every year they must renew their authorizations from the Ministry of Natural Resources. They have authorizations for rehabilitation and release black bears back into the wild, keep black bears permanently in captivity and they allowed to act as an agent to resolve human-bear conflicts.

They release orphaned black bear cubs back into the wild after 18 months. They also work and take adult wild black bears, which were affected by humans, and release them back into the wild when they're ready for it.

When they get unrealizable black bears, which never lived in the wild, such as ex-circus bears, zoo bears or illegal per confiscation, the Bear With Us facility ensure a place to stay in their Bear Sanctuary (Bear With Us, 2018).

2.1.2.2 Aspen Valley Wildlife Sanctuary

This facility is equipped and authorization by the Ministry of Natural Resources and Forestry to rehabilitate black bear cubs. The authorization for this must be renewed yearly. The cubs come to the Sanctuary through the public or the MNFR. The MNRF choose and has release sites which are specifically for releasing bears. They tell them where to release each bear. Injured and orphaned black bear cubs are being rehabilitated, and after one and a halt year, released in their natural environment. Injured yearlings and sub-adults are also accepted to rehabilitate and release back into the wild. They provide a permanent home when the bears are unable to release back into the wild again, after interference through human activities like circus and zoos (Aspen Valley Wildlife Sanctuary, 2018).

They try to feed natural foods like fruits, veggie, eggs and fish. When they have game meat they feed this too. And dog kibble. When a bear is sedated they will ear tagged them, but they don't use collars. To keep the habituation as low as possible they avoid talking around the young cubs. When the bears come into the large outdoor enclosure, they use virtual barriers. The enclosures are located away from their facility (Jan, Aspen Valley Wildlife Sanctuary, personal communication, April 08, 2018).

2.1.2.3 Wild at Heart Wildlife Refuge Centre

This Center is authorized for taking black bear cubs. They admit orphaned and injured black bear cubs, but transfer them to the "*Bear-With-Us Sanctuary and Rehabilitation Center*" where the bears stay for over-wintering and long-term recovery (Monica Seidel, Communication and Operations Manager, Wild at Heart Wildlife Refuge Center, personal communication, March 19, 2018).

2.1.2.4 Sandy Pines Wildlife Center

They are authorized for taking black bear cubs. They admit them but bring them as soon as possible to the "*Bear-With-Us Sanctuary and Rehabilitation Center*" (Sue Meech, Sandy Pines Wildlife Center, personal communication, March 19, 2018).

The organizations cooperate between each other to create the best welfare for the wildlife. "*Bear-With-Us Sanctuary and Rehabilitation Center*" and "*Aspen Valley Wildlife Sanctuary*" have a lot of experience and are more appropriate facilities for the black bears (Sue Meech, Sandy Pines Wildlife Center, personal communication, March 19, 2018).

2.1.3 British Columbia

In the province British Columbia there are rehabilitation Center that are permitted to rehabilitate and care for black bear cubs (BCSPCA, n.d.). The province does not accept out of province bears.

Every wildlife rehabilitation Center is permitted by the Ministry of Forest, Lands, Natural Resource Operation & Rural Development (Wildlife Rehabilitators' Network of British Columbia, n.d.).

Organizations like BC SPCA (Sara Dubois, Chief Scientific Officer, personal communication, March 21, 2018), Prince Rupert Wildlife Rehab Shelter (Nanci Golinia, Prince Rupert Wildlife Rehab Shelter, personal communication, March 22, 2018) and MARS Wildlife Rescue Center (Laurie Ulm, MARS Admin, personal communication, March 20, 2018) do not take black bears. To rehabilitate bears, centers need proper facilities. In British Columbia there are 3 facilities which rescue black bear cubs, rehabilitate and release them.

2.1.3.1 Northern Lights Wildlife Society

They are located in the northern region of BC and accept black bears from the province British Columbia. This organization is permitted from the Ministry of Forest, Lands, Natural Resource Operation & Rural Development (Wildlife Rehabilitators' Network of British Columbia, n.d.).

2.1.3.2 Critter Care Wildlife Society

This facility is permitted by the Ministry of Forest, Lands, Natural Resource Operation & Rural Development to accept, rehabilitate and release orphaned black bear cubs back into the wild.

2.1.3.3 North Island Recovery Association

This organization is located on Vancouver Island and is permitted by the Ministry of Forest, Lands, Natural Resource Operation & Rural Development (Wildlife Rehabilitators' Network of British Columbia, n.d.).

The goal of the organization is to study, care, rehabilitate and release black bears back into the wild. The center built in 1997, a bear nursery, clinic, examining rooms, rehab area, play areas, a pre-release enclosure and a 120' x 120' enclosure with a cave, pond, and a feeding chute to create the best environment for the Vancouver Island bears. When cubs arrive, they come into a quarantine facility for 24 hours. When the organization do have other cubs, they introduce them to each other so that they can stay together. Having not only one cub, makes the rehabilitation easier because they have each other. The cubs are fed with bear milk (cottage cheese, puppy chow, rice pablum, apple sauce and liquid fish vitamins) four times a day until they are able to eat more natural food. They don't give the bear the food directly, they hide it. The bears must search for it. There is minimal human contact during rehabilitation. They will be released in the fall or the following spring (North Island Wildlife Recovery Center, 2018).

2.1.4 Saskatchewan

Saskatchewan allows black bear rehabilitation for only one center. They do not accept out-of-province bears. There isn't an official policy on orphaned cubs. When the center has space for the orphaned cubs, they take them. But the center only has limited space. When there is no wildlife rescue for them to go to, they are more likely to be euthanized than left in nature, when they are too young to fend for themselves (CBC Radio-Canada, July 2015). The released bears are tagged by the Ministry of the Environment to follow their movement (Healing Haven Wildlife Rescue, n.d.).

2.1.4.1 Healing Heaven Wildlife Rescue

The Center has a provincial wildlife rehabilitation license to accept orphaned black bear cubs.

The cubs arrive at the center most of the time in spring, and he releases them a year later after they hibernate on his property. At first, he feeds them puppy chow and later vegetables and meat. The center tries to minimize the contact between the bears and the humans so that they grow as normal as in nature. And to prevent a familiarization. (Saskatoon StarPhoenix, March 2017).

2.1.5 New Brunswick

In New Brunswick the Department of Natural Resources, division Fish and Wildlife, permitted rehabilitation centers (Canada Helps, n.d.)

2.1.5.1 Atlantic Wildlife Institute

The Institute accept black bear cubs and want to release them back into the wild. The institute is a provincially and federally licensed wildlife rehabilitation facility (Canada Helps, n.d.).

When the Institute gets black bear cubs, the usually release them after 18 months. They want to conform to the natural life cycles. In the wild, cubs stay with their mother through the first winter hibernation, and stay with her at least 1 or 2 years (CBC Canada-Radio, May 2012)

2.1.6 Manitoba

2.1.6.1 Manitoba Bear Rehabilitation Center

The Manitoba Bear Rehabilitation Center is the first provincial black bear rehabilitation center. They require a permit that allows them to accept black bear cubs less than one year. The Center is only allowed to accept the bears from the Department of Sustainable Development. The Department of Sustainable Development will be up to date on the progress of the rehabilitation and they will track the bears after releasing (News Winnipeg, 2018).

2.1.7 Alberta

In Alberta the Alberta Environment and Parks exhibit the specific permit for the rehabilitation of orphaned black bear cubs. A cub is defined as a black bear <12 months. The approval is connected to a Facility Plan. The criteria and requirements for a facility to rehabilitate orphaned black bear cubs is found in the “Alberta orphaned black bear cub rehabilitation protocol”.

2.1.7.1 Cochrane Ecological Institute

The Cochrane Ecological Institute is permitted by the Alberta Environment and Parks to accept, rehabilitate and release orphaned black bear cubs back into the wild. The CEI has an 8ft. fence around their hole property. This fence has a ground wire and a 2ft overhang. The Institute has an Animal Health Centre. When orphaned black bear cubs arrive they come into a nursing, indoor enclosure. When they're older they are moved to the Bear Pool Building Enclosure. This enclosure has an 10ft high chain-link fence, a 4-strand electric fencing and an overhang. The enclosure has a double entry door. The enclosure included natural vegetation and trees to climb. When they get older the bears are moved to the bigger Bear Triangle enclosure. This enclosure is furnished as the other one. The CEI releases their bears during hibernation. The bears go into hibernation on the facility in moveable dens. The institute carries the dens, with the bears, out in the wild, hide them and leave them open so when the bear wakes in the spring they are in the wild.

2.1.8 Nova Scotia

The province Nova Scotia does not allow the rescue, rehabilitation and the reintroduction of black bears back into the wild. The Ministry of Department of Natural Resources is responsible for the current policy on black bear cubs (Global News, May 2017). In Nova Scotia rehabilitation facilities needs a „Rehabilitation facility registration” to rehabilitate sick, injured and orphaned wildlife. This excludes black bears (Nova Scotia Department of Natural Resources, n.d.).

The province has qualified facilities to take black bear cubs for rehabilitation. The Center “**Hope for Wildlife**” is willing to take black bear cubs, with a planning, and return them back into the wild after rehabilitation. But unless the policy is chance, the cubs will be taken to a wildlife park, without a chance to release back into the wild, or they will be euthanized (MacDonald A., The Inverness oran, n.d.).

2.1.9 Yukon

The Center “**Yukon Wildlife Preserve**” is authorizes by a permit under the Wildlife Act and is allowed to hold wildlife in captivity. This center is the only one in the Yukon. The approval process for a Center is extensive. The process for this required a public consultation and

depending on the location, the process would require approval from the First Nation. The Wildlife Preserve operated under authority of a Board of Directors which is authorized by the government. It's not privately owned because private ownership of wildlife is not authorized in the Yukon (Maria Vanderkop, Chief Veterinarian for the Yukon Government, personal communication, March 23, 2018). The Yukon Wildlife Preserve Rehabilitation Centers do not have the resource to rehabilitate black bear cubs. They are not equipped for that kind of rehabilitation. In the past 16 years, there have been 3 cubs came to the Yukon Wildlife Preserve. The rehabilitation Centers are only able to house them short term until they found a permanent home in captivity or until they can get transferred out of the Yukon. Adults as well as young bears are being relocated in another area when they were in human-animal conflicts. This is done by conservation officers under the authority of the Wildlife Act (Jake Paleczny, Executive Director, Yukon Wildlife Preserve, personal communication, March 23, 2018).

2.1.10 Nunavut

No information available.

2.1.11 Northwest Territories

In the Northwest Territories there aren't rehabilitation Center for wildlife. All wildlife might be relocated to other out-of-state rehabilitation center, depending on the injury and circumstance. This only occurs under an export permit that the animals are going to be returned and release in the NWT. In the Northwest Territories the responsibility for wildlife is shared between the government, users and renewable resource boards are set up under a land claim agreement. The land claimant groups are direct involved in the wildlife management. When the co-management partner not support the rehabilitation of an orphaned black bear cub, they all together must find another solution or must euthanized the bear cub (Bob Gau, personal communication, April 5, 2018) In the Northwest Territories "problem" bears are caught in culvert traps and are relocated before human-animal conflicts occur (Northwest Territories Environmental and Natural Resources, 2012).

The Wildlife Care Committee from the NWT makes sure that the wildlife is treat safety and humanely (Western Wildlife Outreach, n.d.).

The Northwest Territories does not have specific legislations which deals with wildlife rehabilitation. There are regulations pursuant to the Northwest Territories Wildlife Act that might have aspects to handle and release back into the wild. These terms and conditions would be attached to a general wildlife permit which would allow re rehabilitator to conduct and/or possess wildlife species. (Bob Gau, personal communication, April 5, 2018) Under the general wildlife permit the holder is, among other things, entitled to feed, attract and release wildlife. They are also entitled to capture wildlife (Yellowknife, N.W.T., 2017).

Handling orphaned black bear cubs works under the Standard operating procedures. (Bob Gau, Director Wildlife Division, Department of Environment & Natural Resources, Government of the Northwest Territories, personal communication, April 5, 2018)

2.1.12 Newfoundland and Labrador

The Forest and Wildlife Division of the Department of Fisheries and Land Resources is responsible for the NL Guideline for Wildlife in Captivity and the Wild Life act. It is illegal for people to hold wildlife in captivity without a permit from either the Province or Federal authorities. To apply for such a permit the applicant would need to have the right facilities, a good level of care, security and knowledge. Instances of orphaned black bear cubs are very rare in Newfoundland and Labrador. (Ralph Jarvis, Manager, Salmonier Nature Park and Environment Education, personal communication, April 24, 2018).

2.1.12.1 Salmonier Nature Park in Newfoundland and Labrador

Salmonier Nature Park is a captive wildlife facility and is operated by the Forest and Wildlife Division of the Department of Fisheries and Land Resources. The Salmonier Nature Park does not have the holding or display facility to accept bears. (Ralph Jarvis, Manager, Salmonier Nature Park and Environment Education, personal communication, April 24, 2018).

2.2.1.1 Wet Mountain Wildlife Rehabilitation

The Wet Mountain Wildlife Rehabilitation is licensed by the Colorado Parks and Wildlife. The cubs are brought to them by the Colorado Parks and Wildlife and they rehab the cubs for them. The CPW relies on them (Colorado Parks & Wildlife, 2018).

It's a 120-acre sanctuary where black bear cubs nursed back to health with a healthy fear of humans before they are released back into the wild. The Rehabilitation Center tries to get as little as possible contact with the bears. They feed, waters and cleans the enclosures very quickly. When the bears come to close, they spray them with a fire extinguisher or water hose (Colorado Parks & Wildlife, 2018). In the beginning the cubs are separated but when they become bigger they put them in small groups. Interaction with other bears is important for their development (What's Pawsitive, 2018)

2.2.1.2 Pauline S. Schneegas Wildlife Foundation

The Foundation is licensed to take care of wildlife and accept injured and orphaned wildlife of all species and specializes in bears. They can only accept bear cubs that first come through the CPW or another agency (Pauline S. Schneegas Wildlife Foundation, n.d.). They must apply for the permit ever year.

When the cubs are very sick or very young they may bottle feed for a few days. After that they train to feed from a bowl. A stuffed bear is used to give them the possibility to hug and cuddle with it. Cubs are being socialized as soon as possible. When the time is there to hibernate, the bears must weigh 50 pounds so survive it. When a bear weighs less, they keep them awake all winter. When the bear got up to 50 pounds, they let the bear start to hibernate. In late January or early February, they remove the bears from the dens and bring them into cages where they are being released. The CPW is helping. Another option is to release the bears before hibernation. To keep bears over the winter, and release them in the summer, is the worth method because here is the most danger for them. The Center has permission to release an animal in a radius from 10 miles where they were found. Earlier they used radio collar. Now they use ear tags and microchips. Collars are hard to use when the animal still grows. (Nanci, personal communication, April 06, 2018).

2.2.2 Idaho

In Idaho the Idaho Department of Fish and Game issues rehabilitation permits and control wildlife rehabilitation (Snowdown Wildlife Sanctuary, n.d.). All rehabilitators are licensed by the IDFG. Earlier the black bear Rehabilitation Center must apply every year for a new permit. Now it's every 3 years (Sally Maughan, Licensed Wildlife Rehabilitator; Founder; President, IBBR, personal communication, March 27, 2018).

Regional staff use a flow chart to decide what's going to happen when a black bear cub is found.

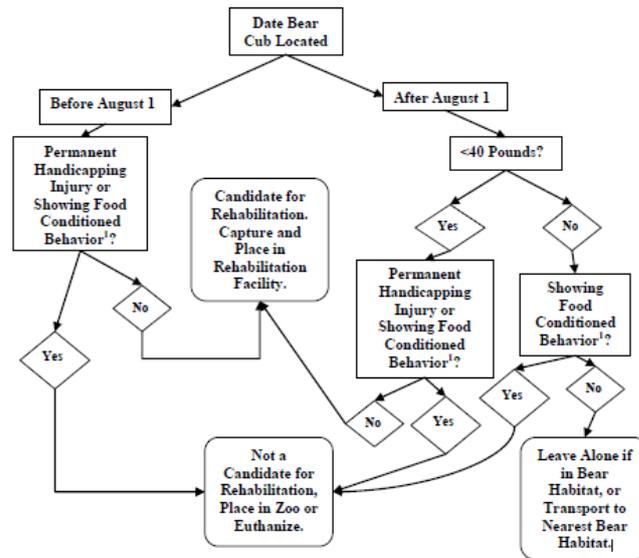


Figure 9: Rehabilitation candidacy flow chart for black bear cubs in Idaho (Idaho Department of Game and Fish, n.d.).

The Guideline for bear rehabilitation says that the infant care must be 20 square meters, the nursing/pre-weaned enclosure 3’x6’x3’, the Juvenile or Adult 20’x36’x16’ and the initial injured adult inside 8’x12’x8’. Weaned cubs must be housed in enclosures that provides 720 sq. The enclosures must have natural vegetation, denning structure and other habitat enrichments. When bears enter a facility, the bears must be screened for health (parasitic and diseases). Orphaned black bears and orphaned black bears from outside Idaho, should not house together to minimize spreading of infections. Contact between caretaker and bear should be as little as possible and there should not be public viewing. The food should be provided in a manner that does not allow the direct human-animal contact. Nutrition must cover the natural diet. When the bears got release they must be free from injury and diseases and must have sufficient weight. The release site should be within 10 miles and it should be a good bear habitat. Bears can be release in late fall to make their own dens. During mid-winter there must be an available den in bear habitat and during the spring. The bears should be monitored. A successful release is when the bears has lived 30 days in the wild, without being in a nuisance situation (Idaho Department of Game and Fish, n.d.).

2.2.2.1 Idaho Black Bear Rehab

The Idaho Black Bear Rehab program is licensed by the Idaho Department of Fish and Game. The IBBR accepts orphaned cubs from Idaho and the surrounding Western states. After rehabilitation the cubs come back to their home states (Idaho Black Bear Rehab, n.d.). Currently they do more out-of-state rehab. In the past year they accept bears out of WA, UT, CA, NV, WY and OR. They are willing to pick the cubs up and bring them back for release. They do this to make it harder for the other states to kill the cubs or to bring them to a zoo. IBBR only wants to accept orphaned bear cubs for the duration of the rehab time.

The IBBR release all the bears back into the wild. When the cubs are out-of-state bears, they must release them in their home states. In the past they release them during hibernation and find a free den for them to put them in December in. This release strategy made it more difficult for the center, because finding a free den was hard. Now they always release the bears in late May or during the first weeks of June, when hunting season ends. But not later. The release date

is determined through the IBBR, the wildlife agency and the conditions and readiness of the bear.

Bottle baby's get a formula which they develop earlier. They feed grain free dog food, almost all kinds of fruits, carrots, salmon and trout. They also feed deer or elk which is brought to them by hunters. During warm weather they feed yogurt and make frozen fruit bowls. They usually collar, tattoo or ear tag the bears. But it's up to home state, where the bears come from. Rehab bears who came out of WA, were not collared because there were too many. They couldn't afford to do it. To keep the habituation to humans as low as possible, the most important step is to get them with other bear cubs. With the beginning of the weaning, which is around 6-7 months, the cubs lose interest in their foster mom. Depending on their age, they feed 1-2 times a day and clean and repair the enclosure. Bottle cubs are fed by a time schedule. After that they feed them in a dish, which they can't turn over and can't get out of the holder for 2 weeks. They prefer bottle-feeding because here you know exactly how much they get and how much they need. They never force the bears to hibernation. They let the bears listen to their body. They take away the fruits and goodies and left the bears with the dog food and water. (Sally Maughan, Licensed Wildlife Rehabilitator; Founder; President, IBBR, personal communication, March 27, 2018).

2.2.2.2 Snowdown Wildlife Sanctuary

Snowdown Wildlife Sanctuary is licensed from the Idaho Department of Fish and Game. Their permit covers all species (Snowdown Wildlife Sanctuary, n.d.).

The generally permitted time is 3 years and then they reapply. After the rehabilitation they try to release the bears in the area where they are coming from. Sometimes they release the bears in west-central Idaho in good bear habitat. In the past they collared a lot of bears and got the results, that the survival rate and their ability to assimilate them back to the wild is very high. They decided that they don't need to collar them any longer.

They have a two acre and a one forested enclosure where they rehabilitate the cubs. Their large forest enclosures work very good to keep the cubs independent. It's always good to have more than one cub and to rehabilitate them together. When the cubs are pre-weaned they keep them in smaller enclosures. They stay there until they are strong enough and on solid food (Jeff Rohlman, Snowdon Wildlife Sanctuary Board of Director, personal communication, April 04, 2018)

2.2.3 Maine

The Maine Department of Inland Fisheries and Wildlife gives the rehabilitator permits.

2.2.3.1 Acadian Wildlife Foundation

Acadian Wildlife Foundation is permitted by the Maine Department of Inland Fisheries and Wildlife for rehabilitate black bear cubs. They are not equipped to care for adults. They try to keep the contact as little as possible and persuaded the cubs to eat from a dish, instead of bottle-feeding. The AWF keep the cubs through their second winter and give them the possibility to hibernate. They release them back into the wild in their second spring. They are being collared (Acadian Wildlife Center, n.d.).

2.2.3.2 Bear to Dream

Bear to Dream is permitted by the Main Department of Inland Fisheries and Wildlife and is not open the public. They fill out an annual report with all information about what happened during

the year. It includes which animal come to the facility and what happens with the animal (release, died). The bear cubs typically were brought to the facilities. The bears stay at the facilities until their typically dispersant age. They also tried earlier releases, to prove bear cub skills and is was successful. They release the bears in 3 different study areas or at the facility area, to track the bears. They are focused on the care of orphaned cubs, observe black bear cubs and release them back into the wild. (Dawn L. Brown, Bear to Dream, personal communication, March 03, 2018).

2.2.4 Minnesota

In Minnesota you need a permit to rehabilitate wildlife. Everyone can apply for a rehabilitation permit, but the rehabilitator must follow classes. Bears may be possessed for rehabilitation if is it specified in the permit (Minnesota DNR, n.d.).

The Minnesota Department of Natural Resources licenses the rehabilitators and handles what happen to the orphaned black bear cub. They handle each situation case-by-case but when a cub is <8-month-old, the cub goes to a rehabilitation center (Andrew N. Tri, Wildlife Research Biologist, Bear Research Project, Minnesota Department of Natural Resources, personal communication, April 27, 2018)

2.2.4.1 North American Bear Center

The North American Bear Center is not a rehabilitation center. The facility takes black bears from rehabilitation centers that can't get released back into the wild or before they get euthanized. Some of them are still young and get bottle feeding 8 times a day. All of the permanent bears on this facility go into hibernation and has vet checks. The bears come to the facility via transfer and after getting releases from the Minnesota DNR. (Sharon Herrell, North American Bear Center, personal communication, April 11, 2018)

2.2.5 Montana

2.2.5.1 Montana Fish, Wildlife and Parks rehabilitation center in Helena

The Montana Fish, Wildlife and Parks rehabilitation center in Helena is a part of the Montana Fish, Wildlife & Parks (FWP). They are permitted of Montana Fish, Wildlife and Parks what enable them to rehabilitate black bear cubs. The application is every year. Every quarter year they report their intake information to the Wildlife Bureau at the Montana FWP office. Black bear cubs were brought to them by the field staff, wardens, biologist, species specialist, who evaluates the situation before they bring them to the Montana Fish, Wildlife and Park Rehabilitation Center (Lisa Rhodin, Wildlife Center of Montana at Montana Wild, personal communication, April 04, 2018). The Montana Wildlife Center is following their denning and winter release program and give orphaned bear cubs a second chance. 44 % of the cubs survive their first year. In the wild it's documented that 37 % of yearlings survive. The Center wants to get the cubs fattened for hibernation. The bear cubs usually begin to hibernate at the center in November or October. They are taken from the center, in the middle of their hibernation, and brought to their mountain dens. These mountain dens were prepared from the FWP in different mountain locations far away from the public. This denning program is an alternative for euthanized the orphaned cubs. The Center is open for the public for education reasons, but the bears are separate (Montana Government Official State Website, Montana Fish, Wildlife & Parks, n.d.).

2.2.6 New Hampshire

In New Hampshire people need a license to rehabilitate wildlife from the New Hampshire Fish and Game Department. There are exceptions under the general rehabilitation permit. To rehabilitate black bears an additional permitting is required which is given by the director of the agency. The New Hampshire Fish and Game Department license Ben Kilham to rehabilitate orphaned black bears. He is the only one. His permit also maintains a population of wild radio-marked bears to study. This is related to the rehabilitation effort. The permit must be renewed every year.

The NH Fish and Game approve each cub before it goes to Ben Kilham. When a cub arrives at the facility first, Ben Kilham reports it to the NH Fish and Game directly.

The facility in New Hampshire accept out-of-state bears from Vermont and Massachusetts. The bears are released in their state of origin.

The NH Fish and Game Department has the full authority to decide where the cubs are released. But they work together with Ben Kilham and work out a release-area together. They have released bears in various areas but the most common area is a state-owned land in the northern part of the state. They release the bears seldom in the areas where they come from, because this are most of the time animal-human conflict areas. The criteria for the release areas with natural bear food and decreased human density. (Andrew Timmins, New Hampshire Fish and Game Department, personal communication, April 17, 2018)

2.2.7 New York

In New York rehabilitators need a license to take injured or orphaned animals. (New York State, n.d.).

The New York Cooperative Fish and Wildlife Research Unit at Cornell University and Department of Environmental Conservation (DEC) have a new citizen science project iSeeMammals. iSeeMammals seeks to collect data and will help researcher to study the distribution and size of the black bear population in New York. It will help researcher to collect data over more areas. There are only a few license rehabilitators who have the training and the facilities for black bear rehabilitation (New York State, Department of Environmental Conservation, n.d.). The DEC issues Wildlife Rehabilitator Licenses to individuals (New York State, n.d.). To manage the black bears in New York, they monitor the health and welfare of wild bears and evaluate the practice of the rehabilitation. They analyses diseases symptoms and establishes guidelines (New York State Department of Environmental Conservation, Black Bear Management Plan for New York State 2014-2024, 2014 May).

2.2.7.1 Kindred Kingdoms Wildlife Rehabilitation Center

2.2.7.2 Adirondack Wildlife Refuge

2.2.8 Pennsylvania

In Pennsylvania are rehabbers who are permitted to accept, rehabilitate and release orphaned black bear cubs (PA Game Commission, personal communication, May 14, 2018).

2.2.8.1 Pocono Wildlife Center

The Pocono Wildlife Center cares for injured and orphaned wild animals. They are licensed by the PA Game Commission.

2.2.9 Washington

In Washington it is illegal to rehabilitate a wild animal without a legal permit. Rehabilitators and Rehabilitation Centers for black bears must be issued a special permit from the Washington State Department of Fish and Wildlife. Before setting up the permit, rehabilitators must meet different requirements, like special training, facility inspections and an exam. There is only one facility that rehab bears in Washington (Katelynn Overton, Wildlife Admissions Specialist PAWS, personal communication, April 02, 2018).

2.2.9.1 PAWS Wildlife Center

PAWS Wildlife Center is permitted by Washington State Department of Fish and Wildlife to rehab bears. The rehabilitation permit must be renewed every three years. PAWS work majority with orphaned cubs but they have worked with a few adult and sub-adult bears. The WDFW contacts PAWS when they have a bear in need. When the public finds a black bear cub, PAWS refers them to the WDFW that they can decide if the cubs actually needs help (Katelynn Overton, Wildlife Admissions Specialist PAWS, personal communication, April 02, 2018). They did a lot of post-release research on their released bear. This shows that the reintegration back into the wild, doesn't have a negative influence on human-animal conflicts. They avoid humans like wild bears do (PAWS Wildlife, n.d.). PAWS sometimes accept out-of-state bears from Oregon. But that's the only state they take bears from. They work together with the Oregon Department of Fish and Wildlife to rehab Oregon bears.

The Washington Department of Fish and Wildlife decides where the bears are going to be released. When the bears are from Oregon, the Oregon Fish and Wildlife decides this (Katelynn Overton, Wildlife Admissions Specialist PAWS, personal communication, April 02, 2018).

The time of staying at PAWS depends on the conditions of the bear. The time can vary between a few months and a year. When the bears are in good conditions and have a lot of fat before the winter, they place the bears during hibernations in a prepared den. Otherwise, the bears are released in spring (PAWS Wildlife, n.d.).

They feed young bear cubs a specific milk formula. In the beginning they feed them with a bottle. During this close contact, the caretakers wear a bear costume and may also wear a reflective mask to hide the face to prevent habituation. They try to get the bear cubs dinking from a dish as soon as possible. When they are weaned, they encourage the foraging by hiding the food in different places in the enclosure. Their enclosures are connected through small doorways. The bears can pass the rooms freely. Caretakers can close the doors from the outside. PAWS never go in the enclosures with the bears during cleaning and feeding. By using the doors, they can put the bears in other enclosures. With the use of enrichment, they keep them occupied and they help them practicing their foraging skills. In Washington they sometimes collar the bears. This is up to the WDFW. (Katelynn Overton, Wildlife Admissions Specialist PAWS, personal communication, April 02, 2018).

2.2.10 Wisconsin

In Wisconsin people must be licensed through the Department of Natural Resources. Under a basic license, rehabilitators are not licensed to accept and rehab harmful animals, which includes bears (Wisconsin Department of Natural Resources, n.d.).

Since 2005 rehabilitators who want to add a specie, must make a facility inspection and must submit a care protocol for this specie (Wisconsin Wild Care, 2015)

2.2.10.1 Wild Instincts

Wild Instincts is permitted by the Wisconsin Department of Natural Resource. This permit must be renewed every three years. They are the only Black Bear Rehab Center in Wisconsin. They are only allowed to take bears from Wisconsin. Most of the time they are the first who are contacted when it's about an orphaned black bear cub but they often get bears from the DNR. They must fill out quarterly reports about how many bears they have and make an end of year report. The release is left up to them and they release them in large forest lands as far away from people as possible. Every bear is ear tagged.

Young bear cubs are feed with bottles but they try as soon as possible to feed out of a dish. They have a 115'X 40' enclosures with ponds, dens and natural vegetation. The bears see them only 30 seconds per day because the feeding area is inside. They try to keep contact as little as possible. Different indoor and outdoor facilities are used for different cases, like ages and health. Fruits, vegetables and fish are the most common food products but they feed some dog food. The bears are released in late fall (Mark, Wild Instincts rehab, personal communication, April 9, 2018)

2.2.11 Vermont

The state Vermont don't have Rehabilitation Center for black bear cubs (Mark E. Scott, Director of Wildlife, Vermont Fish & Wildlife Department, personal communication, April 4, 2018). Rehabilitators are not attempting to rehabilitate any big game animals, which includes Black Bears (Vermont General Assembly, n.d.). When a black bear cub is found, the Vermont Fish & Wildlife Department is responsible for the bear cubs. The State Game Wardens, who are instructed from the Vermont Fish & Wildlife Department, are handling the big game animals and decide what to do.

When a black bear cub is found, the State of Vermont bring the black bear cubs to Bill Killam in New Hampshire to see if they can be rehabilitated there. They never had to kill a black bear cub (Mark E. Scott, Director of Wildlife, Vermont Fish & Wildlife Department, personal communication, April 4, 2018). This is the only rehabilitation facility in Vermont and New Hampshire (New Hampshire Union Leader, 2017)

2.2.12 Michigan

In Michigan the Department of Natural Resources decides and handle orphaned black bear cubs. They decide what will be happen with them. They always use the introducing-method when they found orphaned black bear cubs. That means, they try to find a mother with cubs, and introduce the cub with them in the den. When they find a cub after July 7, they let them stay in the wild by their own because there are more able to survive on their own in this age. It would be very unusually for the Department to euthanize black bear cubs when they find them. In Michigan

there aren't black bear rehabilitators who accept, rehabilitate and release them back into the wild. The department prefers to rehabilitate the bears by themselves and release them, when it's necessary. (Kevin C. Swanson, Michigan Department of Natural Resources, personal communication, April 17, 2018)

"Oswald's Bear Ranch" is licensed by the U.S. Department of Agriculture. The rescue refuge takes bears, as a last stop, before they get euthanized. This is a permanent home where the bears live on the 240-acre ranch (Oswald's Bear Ranch, personal communication, April 5, 2018)

2.2.13 Massachusetts

The state of Massachusetts doesn't have a Rehabilitation Center for black bear cubs.

In Massachusetts, rehabilitators of wildlife need a permit to rehabilitate. The permit does not authorize them to rehabilitate black bears (Massachusetts Division of Fisheries & Wildlife, n.d.).

The Division of Fisheries & Wildlife is the faction who determines what happens with orphaned black bear cubs. They allow occasionally the Tufts Wildlife Clinic to hold black bear cubs. But only temporarily until they could find a permanent home or before they can release the bear where it came from. Typically, the bears stay there only for a few days. When the state attempts to rehab a bear cub, the bear cub is rehabilitated out-of-state in New Hampshire from Ben Kilham. The Massachusetts Division of Fisheries and Wildlife gets in touch with the New Hampshire fish & Game biologist to get a permission from them. The rehab center in New Hampshire is the only one they use for bear cub rehab, what is around 0-3 bears per year (Dave Wattles, Black Bear & Furbearer Biologist, Massachusetts Division of Fisheries & Wildlife, personal communication, April 4, 2018)

2.2.14 Alaska

The state of Alaska does not have a legal rehabilitation and release program for black bear cubs. The Alaska Department of Fish & Game decides what happens with orphaned black bear cubs in Alaska. One way to handle orphaned black bear cubs is to put them in a permanent home like zoos. The cubs come to the Alaska Zoo or Fortress of the Bear for a short time period until they can get transferred, in a zoo around the US, for their new permanent home. Zoos must apply to the ADFG to get on the cub request list. When there is no place in a zoo available, and no zoo on the list, they euthanize the bear cubs. (Claire Turner, Fortress of the Bear, personal communication, April 12, 2018)

2.2.14.1 Fortress of the bear

Fortress of the Bear has a permit, from the Alaska Department of Fish & Game, to house bears for a temporary period or for a permanent period. But they have no permit to rehabilitate and release the bears back into the wild. They must apply for this permit yearly. When they get an orphaned black bear cub, which stays at their facility or stays there only for a short period, they feed fruits, some meat and fish and nuts and additional extras. They feed oatmeal, which is helpful to build up fat and muscle. Young cubs are fed with a bottle and later they feed out of a dish or the food is put out in their outdoor enclosures. (Claire Turner, Fortress of the Bear, personal communication, April 12, 2018)

2.2.14.2 The Alaska Wildlife Conservation Center

The Alaska Wildlife Conservation Center is a sanctuary. They take orphaned and injured bears, when they have the capacity for them. The AWCC do not release animals back into the wild. The bears stay in their sanctuary. They do not rehabilitate and release, they want to preserve the Alaska Wildlife (Robin Moore, Sales & Marketing Manager, AWCC, personal communication, April 3, 2018)

2.2.15 California

In the State California people are not allowed to rehab black bear cubs under a typically wildlife rehab permit. To rehabilitate black bear cubs, a separate Memorandum of Understanding (MOU) is needed. The California Department of Fish and Wildlife assign the permit. It is fixed in the permit to rehab only first year cubs who are under 8 months. (Tom Millham, Lake Tahoe Wildlife Center, personal communication, April 12, 2018)

A permitted rehabilitator must inquire with the department when they are interested in black bear rehab. They must be able to show that they have the minimum caging standards, a location away from domestic pets and experience. Rehabilitator with this issue must also agree with all the condition from the Bear cub MOU. It's a special "bear cub memorandum of understanding (MOU)" on top of the regular rehabilitation permit. The general wildlife rehabilitation permit does not allow the rehabilitation of any big game, which includes black bears.

When an orphaned black bear cub is found, the California Department Wildlife Rehabilitation is the first department who must evaluate the situation. At first, they must estimate if the cub is unable to survive by its own and if they must remove the cub from the wild. After that they estimate if the orphaned cub is a good candidate for rehabilitation and place them in a rehab Center. When they estimate the cub as too sick, they may choose to euthanize.

The Department Wildlife Rehabilitation helped with the rehabilitation, when an older cub, who does not need a long-term stay, is found, when a lot of cubs are found. They also rehab a couple of bears to gain knowledge regarding medical care. They scout out the release sites. (Nicole Carion, personal communication, April 06, 2018)

The "California Wildlife Center" do the initial triage/stabilization of black bears.

2.2.15.1 Lake Tahoe Wildlife Center

Lake Tahoe Wildlife Center is permitted and authorized from the California Department of Fish and Wildlife to care only for First Year cubs. Consequently, the cubs they take are the ones which were born in the same year (January and February). Their goal is to release them back into the wild after rehabilitation. Mostly the cubs arrive the center through Fish and Game biologist. The cubs must go to the Lake Tahoe Wildlife Investigation Lab which is 80 miles away from the facility. They must apply for their permit every three years. The Fish & Wildlife department decides where the cubs will be released. An agreement between Lake Tahoe and F & W says that the bears shall be released within a 75-mile radius from their found area.

They try to give them natural food, like fruits and fish and supplement it with a minimum of dog food. If the cub can lap formula milk, they feed them from a bowl. They only used a bottle when the cub was very young. They try to get them on solid food as soon as possible. When a cub

arrived, they take a blood sample for analysis. During this they ear tag each cub. Their 3 enclosures are connected by electrical doors which are controlled externally. When the bear is in one area, they can close the door and can go in and feed and clean it. With this way they try to keep habituation as low as possible. (Tom Millham, Lake Tahoe Wildlife Center, personal communication, April 12, 2018)

2.2.15.2 The Fund for Animals Wildlife Center

The Fund for Animals Wildlife Center is permitted through the California Department of Fish and Wildlife. They get their MOU from them, for rehabilitate black bears in California. The Center must ask for their MOU each year. When the bear is ready to release, the Center contact the CDFW who decides the exact location and arrange the release. They pick the bear up and bring it to the location. This area is always within the area where the bear was found. When a bear would become imprinted during the rehab and would need a permanent home, or when the bear became too sick, the Center pass it to the CDFW. It's to mention, that this never happened in the Center. The food consists of root vegetables, berries, nuts, honey, fish, fruit and grasses. The orphaned bear cubs are old enough when they come to the center that they can lap out of a dish. The bears get microchips or numbered ear-tags before release. To avoid habituation the caretakers don't talk around the bears. The feeding and cleaning is only once a day to limit exposure. When they are old enough, the Center moves them into a large outdoor enclosure which is away from people. The enclosure included pools, trees, dens, rocks, shelters and platforms. (Christine Barton, personal communication, April 10, 2018)

2.2.16 Utah

The Utah Division of Wildlife Resource (UDWR) is the first department who starts an orphaned black bear process. When the UDWR finds them, they check the conditions of the orphaned and decides what happened with him. The UDWR funded a study on orphaned cub rehabilitation which contribute to the Bear Management Plan from the UDWR. The research shows that cubs that had been close to the smell of humans for many month, neither bold of shy, have a healthy response to their natural habitat and search directly for dens. The study showed that the rehab bears likely avoid humans (Utah Division of Wildlife Resource, 2016).

2.2.16.1 The Wildlife Rehab Center of North Utah

The Wildlife Rehab Center of North Utah (WRCNU) is not permitted to rehab Black Bears. (Buz Marthaler, personal communication, April 10, 2018)

2.2.17 Wyoming

In the state of Wyoming they let orphaned black bear cubs rehabilitate out-of-state. They don't have their own rehabilitation facilities for orphaned black bear cubs in Wyoming. In former cases they sent orphaned black bear cubs to facilities in Idaho or Texas (Wyoming Game and Fish Department, personal communication, May 14, 2018).

2.2.18 Arizona

In Arizona, rehabbers are not allowed to possess bear cubs. There are no licensed rehab facilities for orphaned black bear cubs from the Arizona Game and Fish Department. They don't let bears rehabilitate out of state. When an orphaned black bear cub is found, the Arizona Game and Fish

Department is the first Division to contact. Orphaned cubs will be sent to wildlife sanctuaries or other captive facilities. (Michael Demlong, Arizona Game and Fish Department, personal communication, April 23, 2018)

2.2.19 New Mexico

In New Mexico the New Mexico Department of Game and Fish (NMDGF) certified (certification granted through the International Wildlife Rehabilitation Council) rehabilitators with a rehabilitation permit. Permits may be based on the knowledge and experience of the facility. Black bears are in New Mexico lists under the protected game wildlife under the NMDGF wildlife rehabilitation permit. The rehabilitators must report the NMDGF when a facility get a protected game wildlife animal, to get further instructions.

The permit must be renewed by the NMDGF each year. Because of that bears are under the protected game mammals under the NMDGF, the release-sites are determined by the department. The choice of the release area depends on areas populations, the diseases and proximity to humans. Protected game mammals get an identification tag before release. (Hilary DeVries, New Mexico Wildlife Center, personal communication, April 13, 2018)

2.2.19.1 New Mexico Wildlife Center

New Mexico Wildlife Center is permitted through the NMDGF. To rehab black bears certain enclosures must be there to allow proper, human black bear rehabilitation.

When a cub arrives, is must be stabilized with a fluid protocol and heat. To avoid a overloading of the GI tract, babies will be introduce slowly to their formula, to mix the formula with water in the beginning. They have a specific formula for the specie. The formula is close to the components of mother milk. When the cubs are very young, the be feed with a bottle in the beginning. The older they get, the more they introduce hands-off feeding. The solid food comes when they got older and is depending on the area the bear where rescue to make the solid food as similar as in the wild. To keep the habituation as low as possible, they have different methods. They refer to the bears only by their admission number and not by name. They don't talk and pet the bears. The feedings are not feed with hands. Their enclosures are in areas where they are away from human noise. They do not wear perfumes and don't have domestic animals at the center. (Hilary DeVries, New Mexico Wildlife Center, personal communication, April 13, 2018)

2.2.20 Texas

The state Texas was never in a situation to handle an orphaned black bear cub. That's the reason why they don't have bear rehabilitators. When they would find an orphaned black bear cub, they would make every effort to rehabilitate the cub. A provision to the general rehabilitation permit would allow a person to rehab black bear cubs. When a personal would apply for the rehabilitation permit for black bears they would need to state on their permit and their facility needs to be inspected to make sure that the facility has the right standards to hold bears (Megan Nelson, non-game permit specialist, personal communication, May 7, 2018). They have facilities hoe have bears, but these facilities don't rehabilitate bears for release back into the wild. When an orphaned black bear cub is found, the Texas Parks and Wildlife Department is the first department to contact. When they would find one, they would look for a local rehabber with

sufficient training and facilities to take the cub. When they would find a local rehabber, they would explore out-of-state options (Jonah Evans, Mammalogist, Texas Parks and Wildlife Department, personal communication, May 7, 2018).

2.2.21 Oklahoma

In Oklahoma rehabilitators are allowed to accept orphaned black bears under a rehabilitation permit but they're not allowed to release black bears back into the wild after rehabilitation. The bears stay in permanent homes after that. (Annette King, Wild Heart Ranch, personal communication, April 15, 2018)

2.2.21.1 Wild heart ranch

Wild heart ranch is permitted by the Oklahoma Department of Wildlife Conservation to accept and raise orphaned bears. It's not allowed from the ODWC to release hand raised bears (and cougars) back into the wild. They must renew their rehabilitation permit, which includes bears, every year. The bears come to them through individuals or game wardens.

In the beginning they feed a zoologic formula from a bottle and later natural bear food out of a dish. (Annette King, Wild Heart Ranch, personal communication, April 12, 2018)

2.2.22 Missouri

The state Missouri don't have bears on their state for a long time. They never had and never had need to rehab an orphaned black bear cub. The general rehabilitation permit does not cover bears. Bears are under the Wildlife Code Class 2 (captive dangerous wildlife). The Class 2 permit is not a rehab permit but rather is for captive wildlife. These animals are not released back into the wild. (Sherri Russel D.V.M., State Wildlife Veterinarian, Missouri Department of Conservation, personal communication, April 24, 2018).

2.2.23 Arkansas

The Arkansas Game and Fish Commission does not have permits which provides the rehabilitation of black bears. Their regulations prohibit the rehabilitation of orphaned black bear cubs. The Arkansas Game and Fish Commission is the first department to contact when an orphaned cub is found. When a cub is found during the denning season, they try to find foster mother where they can introduce the cub. When it's out of the denning season and the cub is not old and heavy enough to survive on its own, they euthanize them. Arkansas does not sent cubs out-of-state (Kim Cartwright, Media Specialist, Arkansas Game and Fish Commission, personal communication, April 23, 2018).

2.2.24 Louisiana

The Louisiana WLF handles orphaned black bear cubs because bears are more strictly regulated (Suzy, Heckhaven Wildlife Rehabilitation Center, personal communication, April 20, 2018).

2.2.25 Mississippi

When an orphaned black bear cub is found, the Mississippi Department of Wildlife, Fisheries & Parks tries to find a foster mother to introduce the cub. When they can't find one, they have a Zoo in Mississippi that can temporarily hold the cubs until they can transport the cub to another black bear rehabilitation center like the Appalachian Black Bear Rescue in Tennessee. At the moment, Mississippi has no facilities that can rehabilitate and release orphaned black bear cubs back into the wild. When no center has space for a cub, the cub stays at the zoo and it will maintain captive possession. Every cub which is rehabilitated is released by the MDWFP and they would coordinate the release effort (Jamie Holt, Black Bear Program Biologist, Mississippi Department of Wildlife, Fisheries & Parks, personal communication, May 2, 2018).

2.2.26 Alabama

When an orphaned black bear cub is found, the Alabama Department of Conservation and Natural Resources needs to be contacted immediately to handle the situation. The Alabama Department of Conservation gives rehabilitation permits for mammals, but there are currently no permits for orphaned black bear rehabilitation. The black bear population in Alabama has not presented a need for black bear cub rehabilitation. If the case should come, they would consider the organization Appalachian Bear Rescue in Tennessee because they take out-of-state bears (Marianne Hudson, Alabama Department of Conservation & Natural Resources, Division of Wildlife & Freshwater Fisheries – Wildlife Section, personal communication, April 30, 2018).

2.2.27 Tennessee

In Tennessee a rehabilitator needs a wildlife rehabilitation permit from the Tennessee Wildlife Resource Agency to rehabilitate black bears. Black bears may be rehabilitated under special provisions to the standard requirements of a rehabilitator permit. To rehab black bears a facility must submit a plan for care and rehabilitation which includes a minimum of human contact and provides for a conditioning and habitat acclimation for the release. Under the permit bears may not come into public contact. The release must be under the direction of the TWRA (Michigan State University College of Law. n.d.).

2.2.27.1 Appalachian Bear Rescue

Appalachian Bear Rescue is permitted by the Tennessee Wildlife Resource Agency. It is the only facility in Tennessee that is licensed to rehabilitate orphaned black bear cubs and yearlings. The bears come to them from the state wildlife agencies or National Park Service. When someone found an orphaned bear cub, they call the Appalachian Bear Rescue. They forwarded them then to contact the TWRA or the wildlife agency. The facility must apply for a permit every two years and is being inspected every two years.

The wildlife agency chooses the release site of the bears, which should be as close as possible to the place where they were found.

The nutrition of the food should be as natural as possible. For cubs they use Fox Valley Nutrition bear milk. When they are old enough they feed blueberries, cherries, pears, apples, acorns and more. They use Mazuri Bear Diet to provide the proper nutrition for the bears. They notice a improvement in the coats of the bears while using this. Cubs with an age of under 8 weeks, are fed with a bottle. When they are older than 8-10 weeks they try to wean the cub from the

bottle. From 10 weeks on they eat from a bowl. They use Vectronic GPF tracking collars. (Dana Dodd, Appalachian Bear Rescue, personal communication, April 14, 2018)

2.2.28 Kentucky

In Kentucky a rehabilitation permit includes the rehabilitation of mammals, reptiles and amphibians, except bears. A permit holder is not allowed to rehabilitate black bears (Kentucky Department of Fish and Wildlife Resource, n.d.).

2.2.29 Florida

In the state Florida they rehab orphaned black bear cubs if they don't have threatening injuries and weight less than 30 pounds (Sarah Barrett, Florida Fish and Wildlife Conservation Commission, personal communication, April 17, 2018).

In Florida rehabilitators can rehab bears under a specified bear related permit which is given by the Florida Fish & Wildlife Conservation Commission (Florida Fish and Wildlife Conservation Commission, n.d.).

Bears are categorized under the Class 1E animals, which are describe as those that pose a significant danger to people (Florida Fish and Wildlife Conservation Commission, n.d.).

A rehabilitator must be licensed for the Class 1E animals (Ursids) to be allowed to possess black bears and to guarantee that their enclosures are specialized on black bears.

In Florida are numerous facilities that are licensed for Class 1E species but the Florida Fish and Wildlife Conservation Commission only use one facility which is using their bear rehab protocols to rehab bears. The Florida Fish & Wildlife Conservation Commission is the first department who decide what will be happen with orphaned cubs. When they decide that the cub is a good candidate for rehabilitation they bring them to a rehabilitation center. (Sarah Barrett, Florida Fish and Wildlife Conservation Commission, personal communication, April 17, 2018) The FWC assist in the rehab process when they are needed and they are responsible for the release site of the bears after rehabilitation. (Sarah Barrett, Florida Fish and Wildlife Conservation Commission, personal communication, April 17, 2018)

2.2.29.1 Forest Animal Rescue

Forest Animal Rescue is permitted by the Florida Fish and Wildlife Conservation Commission. Up to now they released all their rehab bears, but the Florida Fish & Wildlife Conservation Commission is authorized to determine that bears can't get released back into the wild for some physical reasons. They must apply for a rehabilitation permit every year, and for the Class 1 captive wildlife permit which allows them to work with bears. The bears are released in an area which is chosen by the FWC. In the case, that the bear become orphaned by natural reasons, the bears will be released in the area where it was found. When the bear become orphaned because of human released reasons, the release area is a more remote one with a good habitat. They feed very young bears with a Multi-Mild formula, and later one they feed probiotics, and natural foods like insects, nuts and berries. The bears are tattooed and when the FWC things its necessary they are also microchipped. Their enclosures have visual barriers and solid walls to close. When they must go in to the enclosure they keep the bear in another enclosure, to not get

seen. They try to keep voices on a minimum. They don't handle food with bare hands(Lisa Stoner, Forest Animal Rescue, personal communication, April 15, 2018).

2.2.29.2 Busch Wildlife Sanctuary

Busch Wildlife Sanctuary never done black bear rehabilitation but they have two bears, which were determine as not releasable. (Amy J. Kight, Busch Wildlife Sanctuary, personal communication, April 16, 2018)

2.2.30 Georgia

In the state Georgia they don't have legislations or permits for the rehabilitation of orphaned black bear cubs (Georgia Department of Wildlife, personal communication, May 5, 2018).

2.2.31 North Carolina

In North Carolina the North Carolina Wildlife Resource Commission is responsible for orphaned black bear cubs and the first department to contact. They do rehab orphaned black bear cubs in North Carolina. A general wildlife rehabilitator permit does not include the rehabilitation of black bears. The North Carolina Wildlife Resource Commission can restrict the type of wildlife that rehabilitators are allowed to accept (Colleen Olfenbuttel, Wildlife Management Division, personal communication, April 17, 2018).

The NCWRC receives orphaned cubs usually in April-June. When they decide that the cub is a candidate for rehabilitation, they place the cub by a licensed private rehabilitator or the North Carolina Zoo. The facilities must provide a necessary care with a limitation of human contact and interactions. After 7-8 month the bears come into a 0,92-ha wooded enclosure. This enclosure is managed and owned by the NCWRC. Through this involvement they have a better oversight of the program and can provide a good condition for release. The food is based on natural foods and dog food. They release the bears after their hibernation on their property in late May and June. They release them in the area where they were found, but at a site with less human interaction. They collared the bears but remove the collars after one year. They want to evaluate post-release movements, mortality factors, survival and the impact of environmental impacts (Gray C., Olfenbuttel C., North Carolina Wildlife Resources Commission (2016). Rehabilitating Orphaned Black Bear Cubs: North Carolina's Program and Effort to Determine Fates of Rehabilitated Bears.)

2.2.32 New Jersey

In New Jersey the Division of Fish & Wildlife issue the wildlife rehabilitation permits. New Jersey don't let bears rehabilitate out of state. Rehabilitators apply for a permit to handle the specific species they are prepared for and the Division of Fish and Wildlife approve them. The conditions for a rehab permit for black bears are that the facility must have veterinary resources, adequate training and a good infrastructure to handle bears. The DFW is the first department to contact when an orphaned black bear is found and they decide what happen with the cub. The Division Fish & Wildlife gets involved when the bear is ready to release. (Paul Tarlowe, NJ Division of Fish and Wildlife, personal communication, April 16, 2018)

2.2.32.1 Woodlands Wildlife Refuge

Woodlands Wildlife Refuge is permitted by the New Jersey Division of Fish and Wildlife. The license is renewed every year again, they don't need to apply for it again. When a person contacts them first, they are required to inform the Division of Fish and Wildlife directly when the cub arrives. When the bears are ready for release, the Division of Fish and Wildlife choose the areas which is mostly on state property. The release-areas are in the originally township or county where the bear was found.

When the cub is very young, they feed with the bottle but try to use a dish as soon as possible. They feed the bears with fruits, greens, nuts, vegetables and puppy food.

The bears are released in spring and are ear-tagged and upper lip tattooed. (Woodlands Wildlife Refuge Inc., personal communication, April 19, 2018)

2.2.33 Virginia

In the state Virginia the general wildlife rehabilitation permit does not include a license to rehabilitate black bears. The Virginia Department of Game and Inland Fisheries authorized one specific facility to rehabilitate orphaned black bear cubs. They have a MOU with the Wildlife Center of Virginia. That means that they are allowed to accept, house and rehab black bear cubs. No other facility is allowed to do that. The DFG is the first department to contact before the cub goes to the rehab center. They decide if they bring the cub to the Rehab Center or, when it's possible, try to use a wild foster mum for the orphaned cubs (Jaime L. Sajecki, Virginia Department of Game and Inland Fisheries, personal communication, April 19, 2018).

2.2.33.1 Wildlife Center of Virginia

The Wildlife Center of Virginia is authorized by the Virginia Department of Game and Fisheries to accept and rehabilitate orphaned black bear cubs and send them after that back into the wild. They work within the Virginia Department of Game and Fisheries but make their own independent decision about the rehabilitation process (Brie Hashem, Wildlife Rehabilitator, Black Bear Focus).

(Wildlife Center of Virginia, personal communication, April 24, 2018). When the cubs are very young, one caretaker feeds the cubs with the bottle. They try to get them used to a bowl as fast as possible to reduce the human contact. The milk is a special formula which is very rich in fat nutrients. After that they get mush bowls several times a day which is made of soft puppy chow and small pieces of soft fruit. When the cubs are weaned they get a variety of different natural bear food. That includes dog food, fruits, insects, nuts and fish. The center has three different enclosures. One bear pen, which is 12' long x 8' wide x 10' high. This includes dens on the back which are 4' long x 8' wide x 3.5' high. Sliding doors between the pens gives the possibility to shift the bears in different enclosures to clean the enclosures. The other one is 40' x 16', with a 16' square pen at each end of the structure. They also have open-air isolations for new or sick bears. The bear complex is two acres big and is built for long term young bears. This complex is split into 3 areas which are about 1/2 acre. There is a 15-foot double fence. In it is a 40' x 300" entrance area with a double-door system. The inner enclosure fences are 10 feet tall and four-foot plastic panels in the inner walls. Each enclosure has a sixx10-foot pool. In every yard are 5 dens. Trees near the fence have slippery protective plastic material that the cubs cannot climb over. Each yard can house 10-12 bears. They have Bear cams in the pens to observe them.

They release the bears in the spring and the Virginia Department of Game and Inland Fisheries determine the release location(The Wildlife Center of Virginia, n.d.).

2.2.34 West Virginia

In the state of West Virginia is currently no authority for a private citizen to provide rehabilitative care to wildlife. The responsibility for all care and rehabilitation of the wildlife is vested with the Division of Natural Resources (West Virginia Division of Natural Resources, 2008).

West Virginia don't rehabilitate orphaned black bear cubs (Division of Natural Resources, personal communication, May 11, 2018).

2.2.35 Ohio

In the state of Ohio any bear who received into rehabilitation must be euthanized. (Second Chance Wildlife Rescue Association, personal communication, April 19, 2018)

2.2.36 Nevada

The Nevada Department of Wildlife gives permits for having black bears but it's not a rehabilitation permit. Black bears are under the game animals in Nevada. "Animal Ark" rehab cubs for the Nevada Department of Wildlife on an informal basis. They already have life bears and are already permitted to do so. (Carl Lackey, personal communication, April 10, 2018)

2.2.36.1 Animal Ark

They are authorized to house captive black bears by the Nevada Department of Wildlife. They don't have a rehabilitation permit but are permitted for temporary holding until the animals can be released again. Before an orphaned black bear cub comes to their facility, the cub must go through the NDOW. When the cubs are very young they feed them with a bottle but when they're old enough they use dishes. In one case, the facility had 4 cubs but used 5 dishes. They did this because of possible competitive behavior and there was always one more available. They try to feed natural food like fresh trout, pine nuts which are still in the pine cone, manzantia berries, crayfish, and in total vegetables and meat. There are never more than two caretakers who handle the bears to keep the habituation as low as possible. They release the bears in late winter, when the bears are still hibernating. The NDOW chooses the release area. In Nevada are two small suitable areas for bears. They collar the bears when it is funded. (Animal Ark, personal communication, April 19, 2018)

2.2.37 Connecticut

In Connecticut it's prohibit to rehabilitate black bears (Connecticut Wildlife Rehabilitation Association, n.d.). The Connecticut Department of Energy and Environmental Protection does not authorize rehabilitators to rehabilitate orphaned black bear cubs and they are not allowed to possess them. (Laurin Fortin, Connecticut Department of Energy and Environmental Protection, personal communication, April 16, 2018)

In Connecticut are no licensed Rehabilitators and facilities for black bears(Connecticut Wildlife Rehabilitation Association, n.d.).

When a black bear cub is found, people should call the Wildlife Division who evaluate the situation. In one case they brought an orphaned black bear cub to a rehabilitator in New York. It was released in Connecticut again after rehabilitation. When an orphaned cub is found they evaluate the age and the weight and decides if the cub can survive by their own in the wild. They also try the technique to introduce a cub with a fostered mum. (Laurin Fortin, Connecticut Department of Energy and Environmental Protection, personal communication, April 16, 2018)

2.2.38 Oregon

Oregon has no facilities who are licensed to accept and rehabilitate black bears (The Oregonian, 2017).

When a black bear cub is found, is must be transferred directly to the Department veterinary at the Oregon Department of Fish & Wildlife (Oregon Fish & Wildlife, n.d.).

Oregon works with a lot of out-of-state Rehabilitation Centers. A lot of bear cubs are going to be sent to other states, like Idaho and Washington, to rehab there. After rehabilitation the bears come back to Oregon for releasing back into the wild.

2.2.39 Maryland

The state of Maryland don't allow the rehabilitation of black bear cubs. The Second Chance Wildlife Center don't has the requisite permit to rehabilitate orphaned black bear cubs (Jim Monsma, Executive Director, Second Chance Wildlife Center, personal communication, April 20, 2018).

2.2.40 South Carolina

In the state South Carolina are no permitted orphaned black bear cub rehabilitation centers. A Center would have to be permitted by the South Carolina Wildlife Resources Commission. They had been only a few occasions where they had orphaned black bear cubs. They let the cubs be rehabbed out-of-state in Tennessee. (Tammy Wactor, SCDNR Unit 1A Biologist, personal communication, April 21, 2018)

3Discussion

In this Chapter the different requirements and methods from each province and state are compared with the Alberta orphan Black Bear Rehab Protocol (Appendix). Many jurisdictions do not have a defined protocol or standard. Only jurisdictions that provided a protocol are discussed below.

Options for orphaned black bear cubs

In 7 provinces in Canada it's possible to apply for a rehabilitation permit for orphaned black bear cubs. Facilities are allowed under the permit to accept, rehabilitate and release Black Bear Cubs back into the wild. Rehabilitators under a general rehabilitation permit are not allowed to rehabilitate them. There are only a few, inspected facilities who are permitted to rehabilitate orphaned Black Bear Cubs in each province. This is shown in Figure 7 and highlighted in green.

Three provinces in Canada have no permitted Rehabilitation Centers who are allowed to rehabilitate orphaned black bear cubs. They leave the cubs in the wild or euthanized. This is shown in Figure 7 and highlighted in red.

In the Yukon a rehabilitation facility is allowed under a permit to accept orphaned black bear cubs for a short period until they find a place in captivity or let them rehab out-of-state. This is shown in Figure 7 and highlighted in blue.

19 states of the United States have permitted and inspected facilities who are allowed to accept, rehabilitate and release orphaned black bears back into the wild. This is shown in Figure 8 and highlighted in green.

In 8 states in the United States it is not possible to rehabilitate orphaned black bear cubs. These states don't have legislations or regulations for the rehab of the cubs and they don't let them rehab out of state. The cubs are euthanized. This is shown in Figure 8 and highlighted in red.

In Arkansas and Michigan, the authorized Department who handle orphaned Black Bear Cubs tries to find a foster mother for the orphaned cubs. No Centers are allowed to accept, rehabilitate and release Black Bears back into the wild. This is shown in Figure 8 and highlighted in purple.

In 8 states of the United States facilities are not permitted for the rehabilitation process of orphaned Black Bear cubs. In these states a few facilities are permitted to hold the cubs for a short period until the cubs get transfer to out-of-state rehabilitation facilities. After the rehabilitation the Black Bear come back to their home states and be released there. This is shown in Figure 8 and highlighted in blue.

In Oklahoma and Alaska rehabilitators are allowed under a permit to accept orphaned black bear cubs. However, the permit does not allow them to release the cubs back into the wild. The Black bears stay in a permanent home after that and don't be released. This is shown in Figure 8 and highlighted in orange.

Criteria:

The Virginia black bear rehab facility work within the guideline of the VDGIF's Black bear management plan but make their independent decisions on rehabilitation

The Idaho Department of Fish and Game have a Flow Chart, with an explanation, in their Guideline, to evaluate the decisions in relation on individual cubs (See Figure 9) (Idaho Department of Game and Fish, n.d.).

The Alberta orphan black bear rehabilitation protocol has specific criteria for each task in the rehabilitation process. Only Black Bear Cubs under 12 months of age are suitable candidates for rehabilitation in Alberta.

In the rehabilitation permit for Ben Kilham from the New Hampshire Fish and Game Department it specifies that he is allowed to accept, after approved by the Bear Project Leader, starving and injured yearlings. Under reservation that the starving yearlings are kept for max. 8 weeks and that the prognosis for recovery is positive (New Hampshire Fish and Game Department, 2018).

Intake:

When an orphaned black bear cub is found the North Carolina Wildlife Resource Commission is the first department to contact and the personnel decide if the bear cub is suitable for rehabilitation (Gray C., Olfenbittel C., 2016).

In Idaho the regional staff from the Idaho Department of Game & Fish decide if the bear is suitable for rehabilitation (Idaho Department of Game and Fish, n.d.).

In the Alberta orphaned black bear rehab protocol it is assumed that the AEP determine the situation (Alberta Environment and Parks, March 2018).

In every province and state, the authority who issuing the permit is the first contact who decides what will be happen to the cub.

In the Idaho Guideline for black bear rehab they mention that the transport from the bears should be in a security container, a resource efficient method of transport including deployment of volunteer resources (Idaho Department of Game and Fish, n.d.).

The Alberta protocol describes the transport of black bear cubs more specifically. They exclude the transport by members of the public, and wildlife rehabilitators unless it can be done by hand with minimal basic equipment and that the transport only can be done by trained personnel (Alberta Environment and Parks, March 2018).

The facilities in Idaho are permitted to accept out-of-state bear cubs. These cubs must be sent back in the home state for release. The Guideline also mention that bear cubs out of different states should not be held together because of the possibility of diseases transfer (Idaho Department of Game and Fish, n.d.). The Alberta protocol does not mention the rehabilitation from out-of-province bears (Alberta Environment and Parks (March 2018).

Housing and Enclosure:

At the facility in North Carolina the bears are released into a 92-ha wooded enclosure which is owned by the North Carolina Wildlife Resource Commission. This means that the NCWRC takes over the direct care of the bears. They are directly involved in the rehabilitation process and are able to have a good oversight over the program (Gray C., Olfenbittel C., North Carolina Wildlife Resources Commission, 2016).

In North Carolina the enclosures have automatic tripod feeders to provide automatically dog food in the enclosures (Gray C., Olfenbittel C., North Carolina Wildlife Resources Commission, 2016).

Handling General Care:

In the Alberta protocol the rehabilitation facility must provide AEP a feeding plan once the cubs have been weaned (Alberta Environment and Parks, March 2018).

Release:

According to the North Carolina protocol the cubs are be released as yearlings in late May or June (Gray C., Olfenbittel C., North Carolina Wildlife Resources Commission, 2016).

In New Hampshire the yearlings are released after hibernation in the spring (New Hampshire Fish and Game Department, 2018).

In Idaho are three different releasing times, decided case by case. Cubs can be released in late fall, mid-winter or spring (Idaho Department of Game and Fish, n.d.).

The Alberta protocol mention that the cubs need to be released before October 15th (Alberta Environment and Parks, 2018).

Monitoring:

In the Idaho Guideline a successful release is defined when a bear live for 30 days or more without being encounter in a nuisance situation (Idaho Department of Game and Fish, n.d.).

The Policy in North Carolina says that they remove the collars after a year to prevent that the collars becoming in-grown (Gray C., Olfenbittel C., North Carolina Wildlife Resources Commission, 2016).

In New Hampshire, Ben Kilham is permitted to trap, immobilize and collar up to 10 bears wild female bears to study them (New Hampshire Fish and Game Department, 2018).

The AEP mention in the permit that they implement a monitoring strategy to evaluate the success of the rehabilitation process (Alberta Environment and Parks (March 2018).

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I. Appendix



ALBERTA ORPHAN BLACK BEAR CUB REHABILITATION PROTOCOL

DRAFT – MARCH, 2018

This protocol addresses the rehabilitation of young-of-the-year orphan black bear cubs and is for use by those wildlife rehabilitation facilities with valid permits under the Wildlife Regulation (“Permittees”) that have been approved in writing by Alberta Environment and Parks (AEP) to rehabilitate orphan black bear cubs. This approval is in addition to an approved Facility Plan containing information specific to black bear rehabilitation. For the purposes of this document, a “cub” is defined as a young-of-the-year animal <12 months.

In order to receive written approval, a Permittee must provide written notification of their intent to rehabilitate orphan black bears at the time of permit renewal to the regional AEP wildlife biologist. This includes an up to date Facility Plan.

To be considered for approval to rear orphaned black bear cubs for release, a Permittee must provide the following information to AEP.

Financial status, including proof of sufficient funding to rear black bear cubs using the methods outlined in this protocol.

Evidence of staff training including past experience and knowledge of rehabilitating bear cubs.

Transportation plan including current equipment and availability of staff for transporting cubs to the facility.

Details of an education plan including, but not limited to, printed materials, outreach programs and messaging (websites, social media) used to educate the public on bear rehabilitation, habituation, food conditioning, encountering bear cubs in the wild, etc. Wildlife rehabilitators are responsible for messaging provided by all staff/volunteers to the public.

oInaccurate information or details that contradict Government of Alberta published information will influence the decision to approve a facility for bear rehabilitation.

The facility must also pass an on-site inspection to ensure it meets the criteria in the approved Minimum Standards as well as those contained in this document.

It is important to be able to evaluate the success of rehabilitating orphan black bear cubs in Alberta. Some amount of research and monitoring has been done across North America using varying rehabilitation techniques. Van Dijk (2000) states that “the release of rehabilitated bears in an area with few bears and enough food and, where the risk of density-dependent social intolerance is low, can be called a success when the released bears survive, reproduce and stay away from human settlements.” Other important objectives are to release bears in good health

with the necessary skills to survive in the wild and minimize disease risk to the native population (Beecham et al. 2016).

AEP defines success as an orphan black bear cub that is released back into the wild in good health, and for the remainder of its life does not exhibit any problem behaviors near human settlements or developed areas.

OPTIONS FOR ORPHANED BEAR CUBS

Leaving cubs in the wild/Returning cubs to the wild. This should be the first option considered if the circumstances are appropriate.

This is a viable option if:

the bear cub is old enough to survive alone (5-7 months), has adequate fat reserves and is assumed to be in healthy condition;

the bear cub does not pose a risk to human safety at the location in which it was found (e.g. along a road, close to residences, etc);

adequate steps have been taken to ensure the cubs are not orphaned (i.e. monitor overnight for mother bear activity);

the bear cub has not been removed from the location in which it was found for a period longer than 48 hrs. Some members of the public are likely to collect the cubs before ensuring they are actually orphaned. Rogers (1985) indicates returns to the wild in this situation can be a successful method to reunite sows with cubs.

Raising/rehabilitating and releasing cubs – where it has been determined by AEP this is the best option, Permittees approved as such may receive bear cubs for rehabilitation and release.

Placement in a zoo – alternative used if other options are not available or appropriate as determined by AEP staff.

Euthanization – alternative that may be used in the following situations:

when the health of the cubs is determined (by the AEP wildlife biologist and/or wildlife veterinarian) to be such that euthanization is the most humane decision;

when the cubs are part of a family group that has become a problem/conflict as determined by Fish and Wildlife Enforcement Branch (FWEB)/AEP;

if there are no rehabilitation facilities approved to house orphan black bear cubs or no space available at an authorized rehabilitation facility; or

other circumstances as determined by AEP or FWEB

CRITERIA FOR REHABILITATION

In determining the suitability of orphaned black bears for rehabilitation in Alberta, first consideration will be the availability of space at a permitted wildlife rehabilitation facility. As there will be a limited number of bear cubs that can be placed at wildlife rehabilitation facilities in any given year, animals will need to be selected as the best candidates for successful captive rearing and release.

In order to be eligible for rehabilitation at an approved facility, black bear cubs must be:

15 kg (33lbs) or less

Admitted to the rehabilitation facility between January and July 1st of any year.

Cubs brought to the facility after July 1st of a year must be evaluated by AEP staff to determine suitability for rehabilitation. Criteria will include (but is not limited to) body condition, percentage of body fat, sickness or injury, time of year and environmental factors.

Young-of-the-year (>12 months old). Young of the year cubs are those cubs born in that year, not yet denned in the winter. Yearlings that have successfully denned over the previous winter are not suitable candidates for rehabilitation upon emergence.

Examined by a qualified wildlife veterinarian (approved by AEP), after which AEP staff will determine whether the cub should be euthanized or allowed to remain at the facility for rehabilitation; oCubs must be in good health (no serious injuries that require long-term vet care or obvious disability).

Injured cubs may not always be suitable for rehabilitation. Cubs requiring longer-term care are generally not recommended candidates for rehabilitation and reintroduction (Beecham et al 2016). Injured cubs will be evaluated by AEP staff in consultation with veterinarians, to determine suitability for rehabilitation.

Permittees must not rehabilitate black bear cubs in the following situations:

Cubs that are found “left alone”. These cubs must not be considered abandoned or orphaned until reasonable effort has been made to reunite the cub(s) with their mother.

Family groups involved in problem wildlife situations will be dealt with as a unit and at the discretion of FWEB and AEP staff.

INTAKE OF BLACK BEAR CUBS AT APPROVED FACILITIES

The following requirements apply to Permittees that have been approved to rehabilitate orphan black bear cubs:

Permittees must notify the regional AEP biologist immediately upon knowledge of an orphaned black bear cub from a member of the public or arrival of a black bear at their facility (without prior knowledge).

When capturing and transporting black bear cubs: oWildlife rehabilitators are not permitted to capture bears (i.e. use of traps or immobilizing drugs) unless it can be done by hand with minimal basic equipment.

Transportation of black bear cubs to a rehab facility must not be done by members of the public.

Measures must be taken to prevent the escape of bears during transport and to minimize handling time.

Retrieval and transportation of bear cubs may only be done by trained personnel with appropriate safety equipment (transport cage, immobilization equipment).

Cubs must be provided water if being transported long distances (>150kms).

Upon receipt of any black bear cub, the rehabilitation facility will arrange for a veterinary exam by a qualified approved wildlife veterinarian**. The results of that exam will be shared with the AEP regional biologist and a decision will be made about the suitability of the cub for rehabilitation.

AEP will consider which facility will receive the cub(s) based on location and current occupancy (if there are multiple permitted facilities). Whenever possible bears should be placed with another bear of similar age/size.

During the rehabilitation process, Permittees will continually evaluate all cubs for their suitability to continue to release.

A plan for ongoing evaluation will be made by AEP with recommendations from the wildlife veterinarian.

AEP will identify to the wildlife rehabilitator who can be contacted as an approved and qualified wildlife veterinarian.

HOUSING/ENCLOSURES REQUIRED AT APPROVED FACILITIES

The following requirements apply to Permittees that have been approved to rehabilitate orphan black bear cubs:

Permittees must not have any bear cubs in the residence of the caretaker at any time. Separate facilities are required to meet the housing requirements.

Facilities must have separate enclosures for bear cubs appropriate to age, size, and temperament. The number and size of pens that meet or exceed the criteria below will determine the maximum number of cubs permitted at each facility. At minimum the facility must have:

Cub Nursery – for cubs <10wks that are bottle fed oCub Enclosure/Medical pen – for cubs > 10 weeks or those in need of medical treatments. This pen should be fitted with guillotine doors (or similar) controlled from the outside for blind feeding/cleaning by caretaker.

A separate enclosure for quarantine of new arrivals, sick animals and to facilitate treatment of these animals.

Minimum of two outdoor captive-rearing enclosures. Ideally an acclimatization pen (for cubs >4months) and a larger wild enclosure (for cubs > 5kg) that allows species specific behaviours (e.g. tree climbing, digging, foraging, and bathing).

Enclosures must include heated indoor options for infant cubs (<8 weeks).

The location of large outdoor enclosures on the site should be chosen to minimize evidence of all human presence to the wildlife in care (visual as well as auditory and olfactory).

The permittee must not open the facility to the public at any time when bears are present at the site.

Each outdoor enclosure that will be used for rehabilitating bear cubs must contain escape deterrents and provide adequate security.

Sides of enclosures must be nine gauge chain-link fencing or concrete block; oComplete chain link roof with a partial solid roof on top for shelter. Roofless cages are permitted if they are designed in a way that ensures security from escape (i.e. electric fencing with overhang, or 3 feet of vertical/slanted metal sheeting on top to restrict climbing);

Buried chain-link designed in such a way as to prevent digging and escape under the fence (Examples include: buried in a concrete base; OR chain link fence extending along the ground 2m from, and perpendicular to, the vertical fence).

Double-door entry systems and locks to secure all gates. oPerimeter fencing must be inspected a minimum of 2 times a week.

Electric fencing (if used) must be tested daily to ensure voltage is working and set appropriately to prevent escape.

The Permittee must install and maintain visual barriers on enclosure walls and fences to prevent bear cubs within the enclosure from seeing humans outside of the enclosure. This reduces interactions with facility staff or any other member of the public. Use of video cameras to monitor bears in their enclosures is encouraged to reduce unnecessary human interaction.

Each outdoor enclosure that will be used for rehabilitating bear cubs must contain a shelter or structure that protect any bears in the enclosure from weather extremes (i.e. den box, culvert or equivalent).

Each outdoor enclosure that will be used for rehabilitating bear cubs must contain habitat enrichment including but not limited to oa water feature, oa climbing structure, and odigging opportunities.

Each outdoor enclosure must have surface substrate that is composed of at least 60% natural material (for example soil and grass). If other surface material is present, it should represent less than 40% of the enclosure and be made of concrete (with a sloping floor to a drain for cleaning) and provide heavy rubber mats to avoid foot damage.

All cages for bear cubs must be designed so that food can be provided and cages cleaned without the animals seeing people (i.e. hatch doors to close animals off in separate cage sections).

No bear cub shall be contained in a cage that is smaller than the minimum cage dimensions applicable to a bear cub of its age. The minimum cage dimensions are indicated in the following

chart for various ages of bear cubs. Larger cubs are often reared in larger outdoor enclosures (1.2 to 2.0 ha/3-5 acres) (Beecham, 2015).

Minimum Cage Dimensions (*taken from IWRC/NWRA Minimum Standards, 4th Edition*)

Order/Family	Infant Care				Nursing/Pre-weaned				Juvenile Outside																
	W	x	L	x	H	W	x	L	x	H	W	x	L	x	H										
Bears			20	Gallon			3	ft	x	6	ft	x	3	ft			20	ft	x	36	ft	x	16	ft	*
Black Bears	(L)		76	Liter		(L)	0.9	m	x	1.8	m	x	0.9	m		(L)	6.1	m	x	11.0	m	x	4.9	m	

HANDLING & GENERAL CARE

The Permittee shall ensure that each cub will have no more than 2 human caregivers during the entire time the cub is held at the facility, from admittance to release.

The Permittee shall ensure that no cub will be fed by hand after it is weaned off bottle-feeding (approx. 10 weeks of age). The facility will implement methods of blind feeding to reduce human interactions with the bears.

The Permittee shall ensure that no public visitation or observation of the cubs is permitted at the rehabilitation facility. The only persons permitted to handle or observe (other than via video monitoring) are the identified caregiver(s), the veterinarian, and AEP staff.

The Permittee will develop an implement an appropriate dietary plan for cubs with an AEP approved wildlife veterinarian based on age, weight, and nutritional needs as determined by the veterinarian.

DISEASE CONTROL

All individual cubs considered a candidate for rehabilitation must undergo disease and parasite testing as directed by wildlife disease specialists and/or wildlife veterinarians designated by AEP.

The Permittee will ensure that within 30 days of release, all cubs are assessed, as directed by wildlife disease specialists and/or qualified wildlife vets, for parasites and disease.

The Permittee must ensure that the has appropriate quarantine enclosures designed to isolate cubs when necessary.

The Permittee must quarantine each bear cub for a period no less than 30 days upon arrival to the facility.

RELEASE

There are several methods/techniques used by rehabilitators to release bears across North America. The method that provides the best chance for a bear to remain unhabituated is one where the bear spends the shortest amount of time in the rehabilitation facility. This method involves releasing bears in late fall/early winter in good condition, and allowing them to find an adequate winter den on their own. Beecham et al. (2016) found there to be no difference in post-release survival of bears that were released using this method vs bears that were placed directly into dens in the winter, or overwintering bears at the facility and releasing them in the spring.

Cubs must be released on or before October 15th of the year they arrived at the facility and are not to be overwintered at the facility unless approved in writing by the AEP Regional Resource Manager. This approval will be determined on a case by case basis.

Cubs will be evaluated for release suitability by AEP staff.

Release of cubs will be coordinated with AEP staff. Cubs will be collected by AEP staff from the rehab facility and taken to an appropriate location (within home range of capture location) for release.

At time of release, cubs will be fitted with a monitoring device (radio collar, ear tag, etc) that will be attached and monitored by AEP.

MONITORING

AEP will implement a monitoring strategy that includes:

Marking each individual released from a permitted facility including an appropriate tracking device.

Data Management - collection and analysis of data

The long term data set will be used as one measure to evaluate the success of the rehabilitation process.

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