

Meeting Summary - DRAFT
Susitna–Watana Hydroelectric Project Licensing
Alaska Energy Authority Main Office
813 West Northern Lights Blvd., Anchorage, AK

Technical Workgroup Meeting on Terrestrial Resources
October 16, 2012, 8:30 a.m.-4:00 p.m.

Attendees:

Organization	Name
ADF&G Wildlife Conservation	Mark Burch
ADF&G Wildlife Conservation	Louis Bender (by phone)
ADF&G Wildlife Conservation	Joe Klein
Coalition for Susitna Dam Alternatives	Becky Long (by phone)
Environ / Normandeau	Sara Barnum (by phone)
Office of Project Management and Permitting (OPMP)	Marie Steele
Natural Heritage Institute (NHI)	Jan Konigsberg (by phone)
USFWS	Bob Henszey (by phone)
FERC	David Turner (by phone)
AEA	Wayne Dyok
AEA	Betsy McGregor
ABR, Inc.	Terry Schick
ABR, Inc.	Brian Lawhead
ABR, Inc.	Alex Prichard (by phone)
ABR, Inc.	Nathan Jones
ABR, Inc.	Janet Kidd (by phone)
Cardno ENTRIX	Lynn Noel (by phone)
MWH	Kirby Gilbert
Solstice AK	Jeff Randall
Van Ness Feldman	Chuck Sensiba

Kirby Gilbert (MWH) facilitated introductions and gave an overview of the meeting objectives, overall study plan schedule and updates on the Susitna-Watana Project engineering studies and facilities plans. The objective of the meeting was described to provide an update on the status of terrestrial resources revised study plans, focusing specifically on responses to comments received (to date) on the July 14th study plans, and any outstanding or unresolved issues. The study plan schedule was presented. Kirby noted that the Comment Response Tables are posted on the Project Web site (<http://www.susitna-watanahydro.org/meetings/>).

AEA PSP and ILP Study Plan Process

The deadline for written comments to FERC on the Proposed Study Plan (PSP) is November 14, 2012. AEA has one month (December 14, 2012) after written comments on the PSP are received to file the final RSP with FERC. Comments are due on the final RSP by January 18, 2013. FERC

will issue the Study Plan Determination by February 1, 2013. Revisions to the Revised Study Plans (RSPs) are ongoing and will be posted to the Project website by the end of October 2012.

Jan Konigsberg (NHI) asked if the revised RSPs would be highlighted to show what has been changed. Kirby explained the RSPs would not be red-lined because it would make the documents too messy, but the Comment Response Tables have subsections for each study, and those could be referenced to see what has changed in the RSPs based on the comments received.

Joe Klein (ADF&G) asked if AEA would hold meetings to address comments. He wanted to know this to help with staff planning. Wayne Dyok (AEA) said one-on-one meetings may be held as needed but no additional TWG meetings for terrestrial resources are planned prior to filing the RSP in December.

Joe Klein said that in theory work could be done on the RSPs up until February 1, 2013. Wayne said in theory that was true and some study plans such as instream flow may still need more work and Wayne said that as issues are resolved AEA would let FERC know. David Turner (FERC) said that in theory that was possible, but last-minute changes are not ideal.

Mark Burch (ADF&G) stated that some studies would have to begin in winter of 2013 for practicality purposes, which means some studies would begin before they are approved. Wayne said changes to the studies would have to be added as the studies move forward. Brian Lawhead (AEA) said that furbearer work requires winter surveys and asked whether any study plan disputes would hold up all of the studies. Wayne said AEA would likely move forward on studies that are not disputed. David Turner said only the mandatory conditioning agencies can dispute the study determination. He also noted that all other studies, not disputed should go forward. If the studies are dependent upon one other, it becomes more complicated.

Jan asked if BLM lands were in the Project area. Kirby acknowledged there are state-selected BLM lands within the Project area.

Project and Study Updates

Kirby went over a few updates to the Project. The 2012 geotechnical investigation led to a slight shift in the location of the dam's axis. The number of workers involved in the construction of the Project is estimated to vary between 300 and 930. The railbelt utility load demand is being input into operation models that can help understand both power and flow outputs from the Project. The three corridors are being further refined and the new details will be presented in the RSP and Terrestrial Study Plans but the same three corridors are still being evaluated.

Comment-Response Review for Wildlife Studies (Brian Lawhead, ABR)

Birds

USFWS had previously expressed the opinion that winter surveys were needed to confirm the presence of small cavity-nesting owls, specifically Boreal Owl and Northern Hawk-Owl. Due to difficulties and safety issues associated with nocturnal surveys in winter, however, the Project will assume that these owls are present in suitable habitats in the study area, but specific surveys

will not be conducted because they would likely yield very little data for a substantial amount of survey effort. No representatives from USFWS were present during the meeting, but it was stated that this approach had been previously agreed to by USFWS at a meeting on September 6, 2012.

With regard to waterbirds, the intent is to include all of the approximately 65 waterbodies sampled in the 1980s studies. The study area boundary, which is a 3-mile buffer around the Project area, will be expanded as needed to include specific lakes that were surveyed in the 1980s. The PSP stated that the waterbird migration surveys would begin in early May, but the plan has been revised to start the last week in April, based on comments from USFWS and ADF&G. Spring migration surveys will begin in late April 2013 and will transition directly into the breeding surveys with no break between them. The survey interval will be five (5) days rather than 7–10 days stated in the PSP. Wayne confirmed with Mark Burch that the timing of the surveys was acceptable.

The majority of the waterbird study area is a high plateau, where waterbodies tend to be clustered in groups, so a lake-to-lake survey pattern makes the most sense in those areas, as suggested by ADF&G and agreed to by USFWS in a previous meeting. In a specifically designated transect-survey block in the southeastern portion of the study area, southeast of the Oshetna River-Susitna River confluence, however, the USFWS protocol for breeding-pair transect surveys will be followed in early June because of the greater prevalence of waterbodies in that lower, wetter area than elsewhere in the study area. USFWS has conducted breeding-pair surveys along several transects in the general area of the eastern portion of the study area for decades, which will provide good comparative data.

As requested by the USFWS, all streams in the study area that have suitable habitat for use by breeding Harlequin Ducks will be surveyed during pre-nesting and brood-rearing surveys by helicopter.

Resolution is still needed on USFWS's concern regarding the risk of bird collision with transmission lines and nocturnal attraction of migrating landbirds to lighted Project structures. A combination of visual monitoring during daylight hours and radar monitoring, both during the day and at night, has been proposed to study the risk of collision with Project structures. Due to the high cost of the radar study, the study is proposed to be conducted in the Susitna River drainage near the site of the proposed dam (not in the mountains to the north). The Susitna River drainage, especially with its east/west orientation in this area, is expected to be traversed by more migrant birds than the mountainous areas. Mark was supportive of the radar/visual combination sampling approach. David said that the reason for choosing to use radar survey over the river as opposed to the neighboring mountainous areas should be clearly explained in the study plan. Brian will follow up with USFWS to confirm whether they support this plan. The radar data will not provide estimates of the number of birds, but will give the number and size of targets, the speed at which they are flying, and flight altitudes, so the data can be used to infer which species or groups of species are passing through the area. The numbers of birds passing through the area (flock sizes) will be recorded from visual observations made during the day and at night using night-vision goggles. Terry Schick (ABR) suggested that, since the radar survey will capture data on all types of birds, the description of the study be presented only in one study plan and

referenced in others. Betsy McGregor and Brian agreed to this approach for documentation. Brian suggested the radar/visual study be described in the waterbirds study plan.

AEA will employ the accepted best practices with regard to lighting of Project infrastructure (e.g., red lights are better than white, and down-shielded lights are better). Wayne said the only caveat would be where the safety of workers and aircraft is concerned and that OSHA and FAA standards would have to be followed. Wayne also described that there were two phases to the lighting concerns: construction and long-term operation; more lights will need to be used during the construction phase.

For the landbird/shorebird study plan, there has been a lot of discussion regarding the specifics of the point-count methods and analyses. The USFWS wants density estimates (e.g., to determine how many breeding pairs are likely to occur in the inundation zone). The study plan has been revised to note that density estimates will be derived from the point-count data. Both removal and distance analyses will be employed, as suggested by the USFWS at a meeting on September 6, 2012.

Mark noted that it had been suggested to split the distance estimates for the bird observations into bands and asked if that was being included in the plan. Terry confirmed that they will categorize the observations into distance classes, but they have not yet defined those distance classes in the study plan. More error in the distance estimates will be removed by using larger classes or bands. Brian said that was a good point that had not been reflected in the meeting notes, but that he would update them.

For the point-count observations, Mark noted that Dave Tessler (ADF&G) had emphasized that he felt using a double-observer method was preferred. Betsy said the double-observer method was discussed and it was decided not to be employed. Mark questioned if there were safety concerns by sending out only a single observer. Betsy confirmed there would be two people present during the surveys. Mark asked if both people in the team would be trained and it was confirmed that they would. Kirby pointed out that only one of them would be recording data. Terry stated, based on comments made by the USFWS, that the additional data from double-observers was not believed to give much greater accuracy in detectability or density estimates than data recorded by a single observer and that the extra data would require more analysis work. Terry recalled that Dave Tessler, at the meeting on September 13, 2012, had been fine with a single-observer approach when following Alaska Landbird Monitoring System (ALMS) protocols and using removal and distance analyses to estimate densities. Mark said that data from double observers would give an estimate of uncertainty, and he will confirm with Dave Tessler if the single-observer approach is acceptable.

The USFWS is concerned about a subspecies of Rock Sandpiper found in the Cook Inlet in winter and wanted to know if changes in flow would have effects on intertidal foraging habitats at the mouth of the Susitna River. The USFWS wants to be sure that the physical effect on the mudflat habitat is assessed. To make this assessment, data from the water resources and geomorphology studies will be examined, including temperature, water quality, flow and sedimentation rates.

At an earlier meeting, Maureen de Zeeuw (USFWS) expressed concern that point-count surveys for breeding birds and habitat surveys for the wildlife habitat mapping study would be conducted concurrently. It will be clarified in the plan that these surveys will be conducted separately.

In the point-count surveys, all bird species heard or seen will be recorded. The USFWS was concerned about species that are present, but not detected. Species may not be detected if they are non-singers or are found in riparian habitats where noise from running water may mask their presence. Swallows and kingfishers are two types of birds mentioned in this regard. Another study element has been added to the landbird/shorebird study plan to include surveys for swallow breeding colonies along the Susitna River within the proposed inundation zone. The study plan also now includes additional point-counts and walking surveys along streams (between point-count sites) in the inundation zone to collect data on species that use riparian habitats.

A 2-mile survey buffer around the proposed Project components had been previously agreed upon as the study area for the point-count surveys, and the study plan and map figure will be updated to show this.

The USFWS agreed that additional point-count surveys outside of the Project area in places such as Denali National Park and the Copper River Basin are not needed because existing detection functions from previous studies can be used for the less common species (for which fewer data are expected in the Project study area).

The landbird/shorebird studies will follow field protocols recommended by ALMS and the data will be analyzed with removal and distance analyses to calculate densities. Based on comments from the USFWS, the length of the point-count survey period has been doubled from 14 to 28 days. Point-count surveys will be conducted continuously from mid-May to mid-June.

Mist-netting had been suggested by USFWS in their original study request as a potential method to study landbird and shorebird migrants in the inundation zone. This topic was not resolved at the September 6, 2012 meeting, but ABR does not recommend mist-netting because it poses a risk to the birds and requires intensive effort for relatively little information in return, when compared with the radar/visual study proposed at a meeting on October 4, 2012; it is not an appropriate method for a study area of this size. ABR's recommendations will be discussed in the proposed study plan. Final resolution has not been reached with the USFWS on the mist-netting issue.

Brian will check with Sarah Bullock (BLM) to see if the response from ADF&G and UAF to her comment regarding the proposed ptarmigan analyses addresses her concern.

Wood Frog

Wood frogs were discussed on September 13, 2012 meeting with Dave Tessler, who stated that a major variable affecting the occurrence of wood frogs is the abundance of fish, because fish prey on eggs, tadpoles, and adult frogs. Acknowledgment of this variable is being made in the revised study plan. Fish occurrence data, if available, will be used as another variable to estimate the likelihood of frogs occurring in waterbodies.

Some of the field study details for frogs were still unresolved. The problem faced with frog detection is similar to the problem faced with the landbird/shorebird point-counts, in that frogs may not be calling at the time of the surveys. This problem is more acute with frogs than birds, however, because birds sing repeatedly and often during the peak of the breeding season. The current frog study plan calls for two observers and two visits to sites at which frogs are not detected on the first visit, to permit calculation of detectability and corrections to the observed occupancy rate. If frogs are detected on the first visit, a repeat visit will not be needed because these are occupancy surveys and occupancy will have been confirmed on the first visit.

Mark asked if ABR needed standardized protocols for surveying for frogs. Brian said he was aware of a standardized USGS protocol for areas with road access, which involves acoustic surveys at designated stops along a road route, but he needs to confer with Dave Tessler to see if other standardized protocols may exist. Terry said he thought the USGS protocol was specific to roaded areas and was similar to the Breeding Bird Survey (BBS) routes used for birds along roads, and that those methods would not apply to this study since there are no existing roads.

Sampling for the chytrid (Bd) fungus will be done opportunistically during the wood frog surveys when frogs are observed and can be caught. The details of the sampling protocols for chytrid fungus need to be added to the plan and Meg Perdue (USFWS) will be consulted regarding this. The goal will be to determine if the fungus is present currently in the frog population in the Project area.

Moose

In response to Sarah Bullock's (BLM) comment, the moose study will not attempt to validate the 1980s carrying-capacity model. The current plan calls for a more recently developed browse removal method used by ADF&G. Sara accepted this approach in an earlier meeting.

ADF&G has decided to conduct a GeoSpatial Population Estimator (GSPE) survey within a single year, as opposed to the two years stated in the PSP. This effort is currently planned for November 2012, but if it is not conducted due to unfavorable weather conditions, it will be conducted in 2013. By the time the RSP is finalized, it will be known whether the 2012 effort was successful.

Caribou

In response to a question posed by Sarah Bullock (BLM) in an earlier meeting, a response in the comment response table stated that the Nelchina caribou herd is known to cross in the proposed reservoir inundation zone, but that the Delta herd is not expected to cross there because they occur farther north. Mark stated that collars were being placed on caribou this week and those are expected to provide empirical data to answer this question. He said what dictates which herd an individual is assigned is where they calve, but that herds overlap at other points in time. Bulls especially can be variable in their location. The language in the plan regarding the crossing of the inundation zone by the two herds will be revised to state that this is not known conclusively.

Based on a comment submitted by ADF&G regarding their expected ability to estimate calf survival, the plan has been revised to delete estimation of calf survival as an objective.

The frequency of relocations by radio-tracking flights has been changed from happening weekly during the spring and fall to twice a month during the spring and fall, due to the length of time required to track all collars, and once a month for all other months. The study plan will be updated to show this change.

Dall's Sheep

The study area defined in the plan was revised based on a suggestion from ADF&G to include all suitable habitat in Game Management Unit 13E located east of the Parks Highway and south of the Denali Highway.

ADF&G will conduct an aerial survey annually in late July or early August, after lambing but before sheep hunting season opens.

Consideration had been given to potentially conducting genetic tests or radio-collaring sheep to examine the degree of isolation of sheep north of the proposed inundation zone in the Watana Creek Hills. At this time, this testing will not be added into the study plan; it is thought that aerial surveys should provide enough information that genetic testing and telemetry are not needed.

The study plan will be updated to reflect that ADF&G will conduct a single summer aerial survey for Dall's sheep each year. It was decided that there would be no value in conducting camera monitoring of mineral licks or using telemetry.

** Lou Bender (ADF&G) and Alex Prichard (ABR, Inc.) joined the meeting via phone.*

Large Carnivores

The study plan for large carnivores proposed using DNA and stable-isotope analyses from hair samples to evaluate the minimum number and dietary composition of bears using salmon spawning streams downstream from the proposed dam. Laverne Beier of ADF&G in Southeast Alaska will be consulted about the feasibility of using hair traps that close after obtaining hair from a single bear, as opposed to wire snags that will obtain samples from more than one bear. The results of that consultation will be included in the RSP.

The study plan has been revised to include a recently developed method of analyzing existing population data from line-transect surveys, which have been conducted in the region by ADF&G twice since 2001, to derive spatial models of population density. Earl Becker of ADF&G will work on this analysis with an expert, David Miller, from the University of Rhode Island. Text describing this analysis has been added to the study plan and the estimated cost will be adjusted accordingly.

Wolverine

The map figure in the PSP portrayed sampling blocks as being 25 square miles, but it should have been 25 square kilometers (as was stated correctly in text). The plan and map have been updated to show the correct area and to consolidate the shape of the study area, as suggested by ADF&G in earlier meetings. The objective of obtaining habitat-use information was removed from the study plan, as suggested by ADF&G, because a single survey would not be sufficient to

obtain this information. However, data on habitat associations can be derived from the occupancy surveys proposed by ADF&G (see below), so that objective will be reinstated.

The wolverine survey needs to be conducted 12–36 hours after a fresh snowfall in February or March. The logistics will need to be in place so the survey team can mobilize rapidly when the conditions to conduct the survey are favorable. ADF&G is interested in conducting the survey work with the expectation that a contractor could provide additional personnel if needed. Details regarding the wolverine survey will be added to the RSP.

In addition to using a Sample-Unit Probability Estimator (SUPE) survey, ADF&G also proposed conducting a less-intensive survey for use in occupancy modeling. At the end of the meeting, Wayne announced that AEA had decided to use both survey approaches, as suggested by ADF&G, so the study plan will be revised accordingly.

** Lou and Alex left the call after the portion on Occupancy Modeling was discussed.*

Terrestrial Furbearers

The terrestrial furbearer study has been developed by Laura Prugh at the University of Alaska Fairbanks and generally approved by ADF&G, with some minor suggestions for improvement. Spatially explicit capture/recapture (SECR) methods for population estimation have been incorporated into the study plan, as recommended by ADF&G.

Aquatic Furbearers

The USFWS is concerned the risk of post-construction bioaccumulation of mercury in piscivorous (fish-eating) wildlife, including river otter and mink. ADF&G agrees that mercury bioaccumulation is a concern. The study plan describes a proposed literature review of the food habits of mink and river otters to gain insight for the mercury risk assessment study, and to obtain hair samples for mercury analysis.

Winter tracking surveys by helicopter are proposed to obtain information on the presence and relative abundance of these two species. The track surveys would estimate the minimum number of otters and the plan was revised to deemphasize mink as a focal species. Efforts to record mink tracks will be made during winter track surveys of otters. Mark said he thought the mink survey should be more than casual observation and would like to revisit the matter after Brian consults further with Merav Ben-David at the University of Wyoming regarding potential survey methods.

The details of hair sampling are still unresolved, but sampling fur from individuals harvested by trappers is a potential way to get samples, as is field deployment of hair-snag stations. The difficulty is that the small number of trappers would result in a small sample size, and that the low population density of these animals will reduce the probability of obtaining hair-snag samples.

** David Turner left the call at this point.*

Beaver surveys will be conducted in the fall when leaves have fallen by looking for food caches and lodge locations. Data from the instream flow study will be needed to draw conclusions about the potential Project effects on habitats used by beavers and other aquatic furbearers in the area downstream from the proposed dam.

** Broke for lunch, 12:05–1:00 pm.*

Habitat Evaluation

The wildlife habitat evaluation study has been revised to include a preliminary list of bird species of conservation and management concern for the Project area, in keeping with the FERC–USFWS MOU regarding migratory birds.

The study plan has been updated to note that, in the study report, more information will be presented on how the rankings of habitat value were determined for each species. Individual species-account sections of the study report will be prepared to help the reader understand how habitats were ranked as being of high, moderate, or low value.

Per recommendations from ADF&G, the study plan also has been updated to note that a “crosswalk” between the fine-scale habitats mapped in the Project area and the coarser scale habitats mapped by the Alaska Gap Analysis Project (GAP) will be prepared. The habitat-value rankings for birds and mammals in the Project area also will be crosswalked to the coarser scale GAP habitats.

Wildlife Harvest Analysis

No comments have been submitted to date.

Little Brown Bat

Anabat ultrasonic detectors will be placed in the infrastructure and reservoir area to detect flying bats, and searches will be conducted in an attempt to locate roost sites and hibernacula. These detectors will not be placed in the access and transmission corridors.

The study plan has been revised to include seasonal adjustments in acoustic sampling periods to account for changes in night length.

Kirby confirmed with Mark that ADF&G was in agreement with the sampling plan for bats.

Small Mammals

No comments have been submitted to date.

Extensive field sampling was done in the area in the 1980s. One new species, the Alaska tiny shrew, has been described since then and the first specimen actually was taken in the study area. Since it was described, the species has been trapped throughout the state, so it is widely distributed, but does not appear to be abundant anywhere it occurs. Pitfall trapping is the preferred method of sampling for small mammals, but it is almost always fatal to the animal and Brian said he is not sure if the data to be collected in a new field effort will provide much new information beyond the present knowledge obtained from the 1980s study and other regional

information. There is also not much that can be done to mitigate the effects of habitat lost once the reservoir is inundated. For these reasons, Brian suggested that the small mammal study could be changed to a “desktop” analysis, rather than undertaking field sampling that is likely to confirm the results of the original study in the 1980s. Mark will inquire at ADF&G whether a desktop study would be sufficient and Brian will confer with the USFWS and BLM to ask if a desktop study is acceptable to them. Wayne stated that FERC has accepted desktop studies in the past for other issues and it did not come up as an issue in the scoping document. Marie Steele (OPMP) asked if mortality from pitfall surveys was really an issue as flooding the habitat will kill them anyway. She said since the existing data was 30 years old there may be some climate change effect that would not show up in a desktop study. Brian replied that climate change effects would most likely be expressed in terms of habitat changes, which will be revealed by the vegetation and habitat mapping study. Kirby advised that agencies be consulted on their thoughts.

Terry said that, for all species of concern, habitat-loss and habitat-alteration assessments can be done in the inundation zone and infrastructure areas, and habitat-alteration assessments can be done in areas downstream of the proposed dam, using the results of the wildlife habitat mapping study.

Comment-Response Review for Botanical Studies (Terry Schick, ABR)

** This portion of the meeting began earlier than scheduled, around 1:40 p.m. Bob Henszey and Janet Kidd called in to join the meeting around 2:30 p.m., which was the scheduled time on the agenda.*

Vegetation and Wildlife Habitat Mapping Study

For the vegetation and wildlife habitat mapping study area, originally a 5-mile buffer was proposed on each side of the Project footprint. This has since been reduced to a 4-mile buffer study area, which is still double the area of the buffer being used in the landbird/shorebird and wetland mapping studies.

In an earlier meeting, Bob Henszey (USFWS) had suggested a comparative analysis between the 1980s vegetation mapping data and current conditions. The Alaska Vegetation Classification (AVC) system used in the 1980s has changed slightly from the final version (Viereck et al. 1992), but more importantly, a historical/current vegetation comparison will not help with the primary focus of the study, which is to assess impacts from the currently proposed Project on vegetation and wildlife habitats. Bob would like the data from the 1980s in case such a comparison is needed in the future. Terry said that they do not have the aerial photography from the 1980s, but they do have the GIS polygons for the 1980s mapping. Without the photography used in the 1980s, however, they will not know if real changes have occurred or if the area was just not well-delineated in the 1980s. Wayne is going to check Juneau to see if the aerial photography is among the archives in Juneau. Terry said the comparative study would be interesting, but that it would be time-consuming and could not be started until the current mapping was complete, which is not expected until late in 2014. Terry indicated there are other studies that should take precedence given the short timeline for this project. Wayne clarified that

he was not suggesting the comparative study be done, but he just wants to pull the information together in case, down the road, if ever needed to be done. Bob agreed that was reasonable.

Concern was expressed over the classification system proposed for wildlife habitat mapping, and Kessel's (1979) bird habitat classification system for Alaska was proposed by the USFWS. One primary difference between Kessel's classification and the AVC (Level IV), which would be used as the vegetation data for the Project habitat map, is in the definition of shrub types: Kessel uses four classes (dwarf, low, medium, and tall) and the AVC uses three (dwarf, low, and tall). Unfortunately, it is not possible to accurately map shrub habitats from aerial imagery using Kessel's system because the distinction between medium shrub types and low and tall types will be difficult to map consistently. Kessel's system will work fine for mapping small survey plots on the ground, but it will result in lots of errors when attempting such a detailed shrub-height discrimination from the interpretation of aerial imagery. Additionally, recent survey data in Alaska indicate that the differences in use of low, medium, and tall shrubs by landbirds are not as nice and clean as Kessel's paper indicates. A crosswalk between Kessel's habitat types the AVC Level IV vegetation types that are likely to occur in the Project area will be prepared so that ABR can discuss the proposed habitat classification approach for the Project and make sure it addresses the concerns from the USFWS. The habitat classification approach does not rely solely on Level IV vegetation data from the AVC, but will include data on physiography, surface forms, disturbance level, and soil moisture regimes, as needed. The study will produce a wildlife habitat map, not a vegetation map. Wayne confirmed with Mark that ADF&G was okay with this approach. Terry will follow up with Maureen.

Riparian Vegetation Mapping Study

The lateral boundary for the riparian vegetation study needs to be determined. Originally, it was proposed that the 100-year floodplain limit be used, but there had been concern from the agencies over how this flood limit would be determined. In the RSP, it is noted that riverine physiography will be mapped and used to determine the limits of the active floodplain of the Susitna River downstream of the proposed dam. This then will be proposed to serve as the study area for the riparian vegetation study. The mapping of riverine physiography will be done before the study area boundary is described in the RSP. Once the riverine physiography mapping has been done, the proposed boundary will go out to the agencies for comments. The timeframe is short on this. The mapping is in progress now and is expected to be completed in late October/early November 2012, and to be ready for agency review by mid or late November.

The downstream boundary for the riparian vegetation study area will be determined to be that point at which the effects of the altered flow regimes in the Susitna River are no longer considered significant. At some point downstream the altered flow regimes will not be substantial because their effects will be overridden by the flow inputs from other streams and/or the effects of tides from the Cook Inlet. This information will come from the modeling of stream flow to be done in the 2012 instream flow study. Wayne said we need to define the characteristics of what is considered "significant." Jan said the changes in flow regime may have a different effect in winter versus summer. Wayne said a freeze-up flow assessment is being conducted. He said that some years have high flows naturally, and that those flows likely will be tempered substantially with development of the Project. Robin Beebe (HDR) can speak to this

more next week. Terry said effects on riparian vegetation succession may be driven largely by high summer flows. Wayne said springtime flows also can have substantial effects with large ice pack jams that build up high backwater. Under a post-project scenario, these large ice effects may be less common, but the ice processes study will address this.

Wetland Mapping

Wetland functions will be determined for all mapped wetlands in the study area.

Based on comments received, a spatially explicit wetland function component will be included to show which waterbodies provide a fish habitat function. This will be accomplished using fish occurrence data from the Project fish distribution and abundance studies.

The consumptive use function will be evaluated, if possible, with data from the recreation and subsistence studies. Specific wetland polygons will be attributed, where possible, to identify those specific wetlands that may be used currently for recreation and subsistence activities. Similarly, wetlands adjacent to proposed roads and corridors that could potentially be used for consumptive purposes will be attributed accordingly. Mark asked if any observations will be made to see what people may be currently using in these areas. Kirby explained that no surveys will be conducted to look for recreational or subsistence activities, but surveys will be conducted to document areas known to be used, and the current uses documented in the area could give insights into potential human activities following development of the Project. There was discussion that there may be some consumptive use activities that may not be uncovered through this process. Terry will revise the wetland study plan to indicate that fine-scale information on consumptive uses for wetlands likely will not be available, but that the wetland functional analysis will strive to indicate which wetlands are currently being used and which wetlands could potentially be used in the future (within the limits of the data obtained from the recreation and subsistence studies).

Wetlands will be categorized as being associated with permafrost or not. The functional capacities of permafrost and non-permafrost wetlands will be addressed directly in the classification of wetland types.

Interdependency Charts

New flow charts showing interdependency inputs and outputs between various Project studies are being created, but are not yet posted to the website for terrestrial resources.

Terry showed the preliminary study interdependency flow chart for the wetland mapping study. Some of the additional inputs needed on the wetland mapping study chart include upwelling and spring data from the groundwater study as well as consumptive use data from the subsistence and recreation studies (which was recognized by the group as possibly not being available at the needed spatial scale). Brian pointed out that the wildlife occurrence information needed to be added to this interdependency chart as well.

Bob suggested revising the title of the wetland mapping study or adding a supporting sentence to the study interdependency chart to indicate that the wetland mapping required by the US Army

Corps of Engineers is specific to the inundation/infrastructure zone and the transmission line/access road corridors (in the upper and middle Susitna basin). This is because there is another flow chart, for the riparian study, which illustrates study interdependencies for the wetland mapping that will occur downstream of the proposed dam. Kirby and Terry accepted this idea.

The invasive plant study interdependency chart was reviewed. Janet said that, in that study, common use trails in and near the Project area would be surveyed for invasive plants, and that data on invasive plants from sites surveyed along the Parks Highway was available from the Alaska Natural Heritage Program.

For the riparian study interdependency chart, the graphic showed the inputs needed by that study were ice processes data in the Susitna River, fluvial geomorphology data, and riparian instream flow data. Bob pointed out that groundwater flow data would also be helpful to have.

Wayne said to keep in mind that the charts were iterative. Kirby said he hoped the charts made sense to everyone as they will be used a lot. The group recapped action items and closed the meeting.

Action Items:

Wildlife

- Determine the minimum size of waterbodies to be surveyed for waterbirds.
- Clarify that the waterbird “eastern block” transect area is a separate survey block.
- Confirm with USFWS whether the proposed bird migration study, using a combination of radar and visual survey methods in the river corridor near the dam site, addresses their concerns.
- Include language as to why the river corridor, as opposed to the upland terrain, was chosen for the radar/visual bird migration study.
- Mark Burch to verify with David Tessler that having only a single observer record data is acceptable for the landbird/shorebird point-count surveys.
- Check with Sarah Bullock to see if her concerns regarding the ptarmigan study have been addressed.
- Distribute past meeting notes to ensure important issues were raised, keeping in mind that meeting notes should be substantive and content-focused.
- Determine with David Tessler if there is a standardized USGS protocol for frog occupancy surveys that would be applicable to the Project area.
- Obtain more details from Meg Perdue on the methods for sampling and analyzing the chytrid fungus in wood frogs.
- Revise the caribou study plan to clarify that it is not known conclusively whether the Delta herd migrates through the proposed inundation zone.
- Update the caribou plan to show the spring and fall capture frequencies have been changed to twice a month during those migration periods, as opposed to once a week.
- Update the Dall’s sheep study plan to clarify that time-lapse camera monitoring of mineral licks and telemetry studies will not be included.

- Follow up with Laverne Beier on the feasibility of hair traps as opposed to hair snags for obtaining samples of bear hair.
- Update the large carnivore plan to include information on the spatial density modeling by ADF&G, working with the University of Rhode Island.
- Update the wolverine plan to include sampling 12–36 hours after snowfall in February and March.
- Update the wolverine plan to state that ADF&G is interested in conducting the survey with the expectation that contractors can provide additional personnel if needed.
- Update the wolverine plan to show that occupancy modeling and a SUPE survey method will both be used.
- Consult with Dr. Merav Ben-David regarding survey methods for mink.
- Confirm with the agencies that a “desktop” study for small mammals will be sufficient.

Botanical

- Discuss with USFWS the crosswalk between the Viereck et al. (1992) AVC Level-IV vegetation types and Kessel’s (1979) habitat types, along with a likely set of habitats to be mapped in the Project area, and make sure that concerns regarding the classification of wildlife habitat types will be addressed in the vegetation and wildlife habitat mapping study.
- Finish the mapping of riverine physiography downstream of the proposed dam to help with defining the lateral boundary of the study area for the riparian study, and distribute to the agencies for review.
- Reconfigure the language for the consumptive use function in the wetland mapping study RSP to describe the sources and types of information available.
- Wayne to check with Juneau to see if aerial photography from the 1980s vegetation mapping study is available in the event that a comparative vegetation study needs to be done in the future.
- Include the wildlife occurrence data as an input on the wetland functional assessment interdependency chart.
- Include groundwater flow data as an input on the riparian study interdependency chart.
- Revise the titles of the wetland mapping study and riparian study to avoid the confusion between the wetlands mapping that will be conducted in each study.