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Via electronic mail

Colorado Parks and Wildlife Commission
c/o Public Involvement Unit
Colorado Parks and Wildlife
6060 Broadway, Denver, CO 80216
dnr_cpwcommission@state.co.us

Re: Comments on the Chatfield Reservoir Reallocation Project Fish, Wildlife and Recreation Mitigation Plan

Dear Commissioners:

The Environmental Law Clinic at the University of Denver Sturm College of Law submits the following comments on behalf of the Audubon Society of Greater Denver ("ASGD") on the Chatfield Reservoir Reallocation Project Fish, Wildlife and Recreation Mitigation Plan ("participants' plan"), which the project participants presented to the Colorado Parks and Wildlife Commission ("Commission") on November 15, 2013. The Environmental Law Clinic represents ASGD in matters related to the Chatfield Reallocation Project.

I. Introduction

Chatfield is one of the premier parks in Colorado, has over 1.6 million visitors per year, hosts a great diversity of terrestrial and aquatic wildlife, and offers a wide range of activities to its visitors (e.g., bicycling, hiking, fishing, swimming, power-boating, kayaking, balloon launches, dog-training, scuba-diving, horseback-riding, model airplane flying, picnicking, camping, bird-watching, and wildlife photography). The U.S. Army Corps of Engineers ("Corps") and various water providers have proposed the Chatfield Reallocation

Project in order to reallocate an additional 20,600 acre feet of flood space for water storage in Chatfield Reservoir. However, as the Commission is aware,[1] the reallocation will have devastating impacts on these unique fish, wildlife, and park resources. The Commission must ensure that the mitigation for these impacts is sufficient to protect this iconic Colorado asset.

The reallocation will have numerous harmful effects on Chatfield. It will disrupt walleye spawning and destroy 454 acres of habitat for the threatened Preble's Meadow Jumping Mouse ("Preble's"), 586 acres of bird and other wildlife habitat, a minimum of 42.5 acres of mature cottonwood trees, and 159 acres of natural wetlands.[2] Furthermore, the project will result in a loss of $3.4 million in park revenues and a substantial number of park visitors over 50 years.[3] Yet, the participants have drafted a mitigation plan that attempts to falsely portray the reallocation as a great benefit to the park and its resources, rather than as a project with such detrimental impacts.[4]

Not including mitigation, these devastating impacts come at a price of $178.7 million, including mitigation.[5] At $116 million,[6] the estimated cost of mitigation is also high, but the extraordinary environmental and recreational impacts necessitate such expenditure. These impacts and the requisite mitigation costs could be greatly, or even entirely, avoided if the Corps were to select a different alternative for the project. Less damaging alternatives are available that still allow for an increase in water storage capacity. These exorbitant environmental and monetary costs cannot be justified for an unreliable water supply project that the Corps expects to have zero dependable yield.[7]

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[1] Scott Roush, Chatfield Park Manager, and Ken Kehmeier, Wildlife Biologist, presented a Chatfield Reallocation Update to the Commission on September 13, 2013. *See Chatfield Reallocation Project Impacts*, SAVECHATFIELD.ORG, http://www.savechatfield.org/documents/Chatfield_Reallocation_Project_Impacts_9-2-2013.pdf (last visited Nov. 2, 2013) [hereinafter Chatfield Reallocation Update].

[2] *See* Chatfield Reservoir Reallocation Project Participants, Chatfield Reservoir Reallocation Project Fish, Wildlife and Recreation Mitigation Plan (2013) [hereinafter Participants' Mitigation Plan].

[3] U.S. Army Corps of Eng'rs, Dep't of the Army, Final Integrated Feasibility Report & Environmental Impact Statement for Chatfield Reservoir Storage Reallocation 2-72 to 2-74, tbl. 2-9 (Jul. 2013) [hereinafter FEIS].

[4] Participants' Mitigation Plan, *supra* note 2, at 16-17.

[5] FEIS, *supra* note 3, at 2-72, tbl. 2-9.

[6] Participants' Mitigation Plan, *supra* note 2, at 66.

[7] FEIS, *supra* note 3, at app. BB, 6; *Chatfield Lake, CO Cost of Storage for M&I Water Supply*, U.S. ARMY CORPS OF ENGINEERS, http://www.iwr.usace.army.mil/Portals/70/docs/

If the Corps and the participants proceed with this reallocation, they must adequately mitigate the devastating impacts to fish, wildlife, and park resources. Colorado law mandates that these impacts be mitigated "to the extent, and in a manner, that is economically reasonable and maintains a balance between the development of the state's water resources and the protection of the state's fish and wildlife resources."[8] Mitigation plans must adhere to a strict list of requirements, including the use of the best available scientific information and professional judgment, a monitoring plan, and mitigation that is proportional to impacts.[9] The participants' plan does not meet these legal requirements or maintain a balance between protection of the environment and Colorado's need for water storage.

First, the participants' plan is deficient because it does not use the best available scientific information and professional judgment.[10] The plan disregards best available science in its evaluation of water fluctuations and water quality effects on the fisheries due to climate change, mercury, and Plum Creek sedimentation. It also uses arbitrary increments and inappropriate weighting factors for calculating ecological functional units for Preble's habitat. Additionally, the bird habitat model was only reviewed by Corps personnel, unlike the wetlands and Preble's models that were also reviewed by outside experts.

Second, the participants' plan is deficient because mitigation is not proportional to impacts. The plan does not contain a concrete strategy to mitigate the loss of 0.7 miles of stream habitat on South Platte River used for fishing. The project will also destroy 155.2 acres of critical Preble's habitat, which will only by mitigated by improving already existing critical habitat rather than creating new critical habitat. Additionally, there will be a net loss of at least 22.5 acres of mature cottonwoods because the participants will only protect existing cottonwoods and not replace these acres of lost habitat. The plan also does not mitigate for the potential loss of an additional 61.5 acres of tree habitat for birds and wildlife between 5,439 feet and 5,444 feet. Further, the plan only mitigates 47 of 159 acres of wetlands that will be lost onsite.

Third, the participants' plan is deficient because it does not contain sufficient monitoring plans. The plan does not include procedures for monitoring the killing of Preble's mice so that the project does not result in a take of more than the U.S. Fish and

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CleanWaterSupplyWorkshop/Cone%20Chatfield-Storage-cost.pdf (last visited Nov. 7, 2013).

[8] COLO. REV. STAT. § 37-60-122.2(1)(a) (2012).

[9] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3), 1604(A)(2)(a)(5) (2013).

[10] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3).

Wildlife Service's ("FWS") permitted number. The plan also does not provide a stringent monitoring plan to ensure successful and permanent creation of new wetlands.

Fourth, the participants' plan is deficient because of uncertainties in the mitigation for Preble's habitat, bird and other wildlife habitat, and wetlands. The plan contains significant uncertainty regarding the amount of offsite land that the Corps and participants can acquire for Preble's habitat mitigation. It also relies on mitigation of Preble's habitat, which is also insufficient, to mitigate for lost bird habitat. Furthermore, the participants' plan does not discuss the acquisition of supplemental water rights for wetlands creation.

Fifth, the participants' plan is deficient because it does not properly mitigate the loss of recreational experiences at the park and the resulting impacts to Chatfield's long-term finances. The plan does not mitigate for the effective loss of 587 acres of wildlife habitat and recreational land that will be inundated. It also does not adequately mitigate the loss of park aesthetics due to weed proliferation and mudflats around the reservoir during low-fill periods. Further, the plan does not include a proper visitor displacement study, an evaluation of the effects of Chatfield revenue loss on Colorado's state park system, or a suitable reimbursement plan. Additionally, the participants' plan imposes inappropriate financial liabilities on Colorado Parks and Wildlife ("CPW") for an environmental pool and capital improvements.

Finally, the participants' plan does not contain adequate enforceability measures. The plan refers to enforcement contracts between the Corps, the Colorado Department of Natural Resources ("CDNR"), and the participants; however, these contracts are not included in the plan for review by the Commission. Additionally, adequate enforcement is uncertain because the oversight committees will not include representatives from stakeholders who have more than an interest in acquisition of water storage and minimization of costs. The plan also frequently uses nonbinding language to describe mitigation duties.

Because of these deficiencies, the participants' plan does not maintain a balance between protection of the environment and Colorado's need for water storage. In weighing the criteria that the Commission will use to evaluate the mitigation plan, the majority of the criteria weigh heavily against the plan. Despite the planned mitigation activities, there are many impacts to the invaluable fisheries, Preble's habitat, bird and other wildlife habitat, and wetlands that will go unmitigated. Although the participants' plan will result in some benefits to the harmed resources, additional mitigation is necessary in order to fully offset the project's immense impacts. The project has no net benefit for the wildlife resources it affects. The plan is also inconsistent with a number of environmental conservation goals and Colorado Parks and Wildlife's mission to "protect, preserve, enhance, and manage for

the use, benefit, and enjoyment of the people of this state and visitors of this state. . ." outdoor, natural, and scenic recreational areas.[11]

In order to resolve these deficiencies and bring the plan into compliance with legal requirements, the Commission should require that the participants do the following:

- *Impacts to fisheries.* (1) Complete scientific studies on and develop concrete mitigation plans for the potential impacts of climate change, mercury, and Plum Creek sedimentation; and (2) fully mitigate the 0.7 miles of lost stream habitat on the South Platte River and not merely "up to" 0.7 miles.

- *Impacts to Preble's habitat.* (1) Modify the Ecological Functions Approach to remove the use of arbitrary increments and weighting factors; (2) limit vegetation-clearing to a period that minimizes impacts to Preble's during hibernation and maternal nesting periods; (3) petition the U.S. FWS to add another CHU in Colorado or to extend the range of an existing CHU for the Preble's; (4) create a monitoring plan to track the killing of Preble's during construction; (5) acquire a minimum of 15% of available properties for offsite mitigation prior to construction; and (6) direct CDNR to communicate the benefits of conservation agreements to property owners.

- *Impacts to bird and other wildlife habitat.* (1) Obtain external examination of the bird habitat model; (2) include a plan to mitigate tree loss between 5,439 feet and 5,444 feet; (3) complete a reassessment of the total cottonwood acreage lost; (4) limit vegetation-clearing to a period that minimizes impacts to birds during nesting seasons; and (5) mitigate for all 42.5 acres of lost mature cottonwoods.

- *Impacts to wetlands.* (1) Determine if acquisition of supplemental water rights is necessary for wetlands creation and if those rights are available; (2) develop a 10-year monitoring period to ensure successful establishment of functional wetlands; and (3) require targeted oversight of wetlands generation by the Project Coordination Team to lessen the chance that the wetlands will either be of inferior quality or fail entirely.

- *Impacts to parks.* (1) Acquire 587 acres of land adjacent to the park; (2) develop a concrete weed control plan; (3) include CPW and Chatfield staff in the decision-making for setting reservoir water levels; (4) perform a visitor displacement assessment; (5) properly evaluate the project's impacts on the state park system as a whole; (6) reimburse the park for its revenue losses for fifty years after the

[11] COLO. REV. STAT. § 33-10-101(1).

project's completion, and not two to five years as the plan currently proposes; and (7) fully pay for capital improvements listed in the plan and the environmental pool.

- *Enforceability of the plan.* (1) Present the water storage agreements between the Corps, CDNR, and the participants to the Commission for review; (2) include non-governmental stakeholders on the enforcement oversight committees; (3) fund objective third-party oversight of mitigation activities and the hiring of a restoration ecologist; (4) replace nonbinding language in the plan with binding language; and (5) incorporate third-party beneficiary clauses into the enforcement contracts.

Chatfield is one of Colorado's most visited state parks, but it is under serious threat from this proposed project. If the Commission overlooks the deficiencies in the current mitigation plan, these unique features of Chatfield will be lost forever.

II. Factual Background

ASGD is a grassroots conservation organization based in Littleton, Colorado, with about 3,000 members in the Denver Metro area. The mission of ASGD is to advocate for the environment through conservation, education, and research. The members of ASGD are highly concerned with preservation of the abundant and unique wildlife and park resources in Chatfield State Park. Representatives of ASGD have been involved with the Chatfield Reallocation for over twelve years.

Since 1986, the Corps has developed plans for increasing the storage space in Chatfield Reservoir. The storage space is now being developed to provide the Denver Metro Area with an increased availability of water for fifty years.[12] While a water shortage is projected for Denver, Chatfield Reallocation is not the answer.

A. Project Alternatives and Realities

The devastating impacts resulting from the Chatfield Reallocation can be avoided altogether. Alternative 3, Chatfield Reallocation, was one of four possible alternatives the Corps identified in its NEPA analysis. The other three alternatives result in significantly less environmental damage and require less mitigation.[13] Alternative 1 ("no action") will inundate 186 acres of land (including approximately 12.26 acres of wetlands), have no water quality impacts, result in minimal vegetation loss from construction of Penley Reservoir,[14] and will utilize already existing gravel pits that will result in no additional

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[12] FEIS, *supra* note 3, at 1-13.
[13] *See id.* at 2-67 to 2-77, tbl. 2-9.
[14] *Id.*

environmental impacts.[15] Alternative 2 (Non-Tributary Ground Water/Downstream Gravel Pits) will require some construction for new wells and gravel pits but will destroy less vegetation than Alternative 1 and will only inundate nine acres of wetlands.[16] Alternative 4 calls for an increase of water storage at Chatfield Reservoir but provides a lower maximum water elevation and results in fewer impacts than Alternative 3.[17] Instead of choosing one of these preferable alternatives, the Corps chose the most environmentally damaging alternative.

Not only is the chosen Chatfield Reallocation the most environmentally damaging option, but it is also an impractical solution for providing water to the Denver Metro area for the next fifty years. The water rights in the project are extremely junior, and the participants will only be able to store water in Chatfield during high river flows.[18] The project has a zero dependable yield.[19] Furthermore, a large percentage of the participants that were originally supporting the project have since dropped out and are seeking alternative water storage options. Out of the fifteen original participants, five have left the project.[20] These five participants were set to utilize 38.9% of the newly reallocated storage amount.[21] Since the departure of these participants, Centennial Water and Sanitation District, Castle Pines North Metro District, and Castle Pines Metro District, have absorbed some of the unassigned storage space.[22] Colorado Water Conservation Board has stepped in to claim the remaining 25.05% of unassigned storage.[23] This number will probably increase since the participants' plan does not show that Western Mutual Ditch Company has also dropped out leaving their 6.9% of water storage unclaimed.[24] Overall, the fact that 33% of the original project participants, along with their 38.9% share of water storage, have since abandoned the Chatfield Reallocation Project is a strong indicator of the reallocation's impracticality.

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[15] *Id.*
[16] *Id.*
[17] *Id.*
[18] FEIS, *supra* note 3, at ES-6.
[19] *Id.* at app. BB, 3.
[20] U.S. Army Corps of Engineers, Dep't of the Army, Draft Integrated Feasibility Report & Environmental Impact Statement for Chatfield Reservoir Storage Reallocation 1-10, tbl. 1-1 (Jun. 2012) [hereinafter DEIS]; s*ee also* Participants' Mitigation Plan, *supra* note 2, at 13.
[21] DEIS, *supra* note 20, at 1-10.
[22] Participants' Mitigation Plan, *supra* note 2, at 13.
[23] *Id.*
[24] Chatfield Reservoir Reallocation Project Participants, Chatfield FWRMP Final (Nov. 15, 2013) [hereinafter FWRMP Presentation Nov. 15, 2013], *available at* http://wildlife.state.co.us/ParksWildlifeCommission/Archives/2013Calendar/Pages/November2013.aspx.

The Corps and participants should have chosen another option–the combination of gravel pits, increased water conservation, and other existing water infrastructure.[25] This combination could reduce or eliminate the need for the increased water storage at Chatfield.[26] Rueter-Hess is one of the existing water infrastructure components that could help eliminate or reduce the burden on Chatfield. Rueter-Hess is a new reservoir in Parker that currently stores water for Parker, Castle Rock, Castle Pines, and Stonegate.[27] Rueter-Hess still has 45,200 acre feet of unused capacity after accounting for current storage rights of the entities listed above.[28] The participants could use Rueter-Hess for storage instead of Chatfield and still be able to receive their water.[29] This is possible because entities like South Metro Water Supply Authority and Centennial, which are participants in the Chatfield Reallocation Project,[30] are already applying to store and receive their WISE water supply from Rueter-Hess.[31]

B. Devastating Impacts of the Project

The Chatfield Reallocation will substantially impair Chatfield's fisheries, bird and wildlife habitat, wetlands, and the park's facilities, recreational, and financial resources.

Fisheries. Chatfield Reallocation will have major impacts on the fisheries in and downstream of Chatfield Reservoir. There will be, at minimum, a net loss of 0.7 miles of stream along the South Platte River and Plum Creek from inundation, which is used for stream fishing and walleye fish runs.[32] Further stream loss could occur downstream from Chatfield as a result of increased low and zero flow days; this would increase the net loss of aquatic habitat resulting from the project. It is projected that there will be an additional 70 zero flow days per year.[33] The increase in zero and low flow days can affect Chatfield Sate

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[25] *See* Letter from Carol DeStefanis, President, Audubon Soc'y of Greater Denver, to Col. Joel Cross, Commander, U.S. Army Corps of Eng'rs, Omaha Dist. 11-19 (Sep. 3, 2013) [hereinafter ASGD comments on FEIS] (on file with author), *available at* http://www.savechatfield.org/comments/ASGD_Final_EIS_Comments.pdf.
[26] ASGD comments on FEIS, *supra* note 25, at 17.
[27] OMAHA DISTRICT, U.S. ARMY CORPS OF ENG'RS, NWO-1997-80472-DEN, Special Public Notice Consideration of Amendment to Existing Section 404 Permit For the Rueter-Hess Reservoir (2011) [hereinafter Public Notice] (on file with author).
[28] *Id.*
[29] *Id.*
[30] FEIS, *supra* note 3, at 1-10, tbl. 1-1.
[31] Public Notice, *supra* note 27.
[32] Chatfield Reallocation Update, *supra* note 1, at 11 min. 10 sec.
[33] Scott Willoughby, *A Plan to Double Chatfield Reservoir Water Storage Affects Recreation*, DENVER POST (Sep. 22, 2013), http://www.denverpost.com/outdoors/ci_24148323/plan-

Fish Unit ("CSFU"), a state fish hatchery run by CPW.[34] CSFU is located downstream from Chatfield and serves as a fish holding facility to support the dispersal of fish in the Denver metro area.[35]

Chatfield Reallocation will also result in water quality problems in and downstream of Chatfield. The degradation of water quality results from water level fluctuations, nutrient influxes of phosphate and ammonia, excess dissolved oxygen, mercury, and climate change.[36] Water quality issues may result in the loss of Chatfield Reservoir as one of just three walleye spawning sites in the entire state.[37] Those same water quality concerns are also likely to harm the wild population of smallmouth bass in the reservoir, which would require the Colorado Division of Wildlife ("CDOW") to stock the smallmouth bass in the future.[38] Also, the higher water release rates may lead to increased overall fish migration out of the Chatfield Reservoir.[39] While the nutrient influxes from inundated, decaying vegetation are likely to have a "new reservoir" effect that may benefit the aquatic ecosystem in the short term,[40] it is likely to have long-term negative impacts on the fisheries. A serious unaddressed water quality concern is the potential for a mercury problem to develop in the reservoir as a result of the project; these mercury issues could lead to the need for health advisories against fishing in the reservoir.[41]

The fisheries at Chatfield State Park are an important wildlife resource to the state. Chatfield reservoir is one of only three spawning sites in the state of Colorado for walleye brood fish.[42] Approximately twenty-five million walleye brood fish eggs are harvested from this site and used to re-stock Colorado's supply of walleye brood fish and trade with other states.[43] Additionally, Chatfield Reservoir is a sport fishing resource, as a well a source for stream fishing, escaped fish from the CSFU, and trout that migrate up the South

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double-chatfield-reservoir-water-storage-affects-recreation; *see also* Chatfield Reallocation Update, *supra* note 1.

[34] Participants' Mitigation Plan, *supra* note 2, at 22, 25.

[35] *Id.*

[36] *Id.* at 8-10, tbl. 1; Chatfield Reallocation Update, *supra* note 1, at 22 min. 50 sec.; *Final Independent External Peer Review Report Chatfield Storage Reallocation Study and Environmental Impact Statement*, 2011 BATTELLE MEMORIAL INST. A-28, *available at* http://savechatfield.org/documents/BattelleReport.pdf [hereinafter Battelle Report].

[37] FEIS, *supra* note 3, at 2-67.

[38] Chatfield Reallocation Update, *supra* note 1, at 23 min. 42 sec.

[39] Participants' Mitigation Plan, *supra* note 2, at 24.

[40] FEIS, *supra* note 3, at 2-66.

[41] Chatfield Reallocation Update, *supra* note 1, at 24 min. 15 sec.

[42] Chatfield Reallocation Update, *supra* note 1.

[43] *Id.* at 20 min. 42 sec.; FEIS, *supra* note 2, at 3-21.

Platte River.[44] The water flow from Chatfield is also important for the health and stability of the CSFU fish hatchery.[45]

Preble's. If the Corps' reallocation goes forward, the Preble's mice that thrive in the rich riparian habitat around Chatfield State Park will lose a large portion of their habitat. The reallocation will destroy approximately 454 total acres of Preble's habitat, including 75.2 acres of critical habitat in West Plum Creek, 80 acres of critical habitat in Upper South Platte, and 298 acres of non-critical habitat.[46] According to the Biological Opinion from the FWS, the project will temporarily impact an additional 125.16 acres of Preble's habitat during construction.[47] The FWS estimates that 579.16 total acres of habitat will sustain permanent and temporary project impacts, which is 23.1% of Preble's habitat in the project area.[48]

The reallocation will not only destroy the Preble's habitat but also the mouse population at Chatfield. "The proposed project may adversely affect the Preble's by drowning or crushing mice, forcing mice to disperse, disrupting normal behaviors, and by removing Preble's habitats that are required for feeding, breeding, and sheltering."[49] As part of the Biological Opinion, the FWS has issued an Incidental Take Statement to the Corps that allows up to 646 Preble's mice to be killed because of the reallocation.[50] Unfortunately, the loss of this many mice amounts to approximately 27% of the Preble's population at Chatfield.[51]

Proper mitigation of these devastating impacts to the Preble's is of the utmost importance. Colorado listed the Preble's as threatened, and the FWS listed it under the federal Endangered Species Act.[52] Habitat loss continues to threaten the Preble's throughout its limited range, which is only along the eastern edge of the Front Range of

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[44] Chatfield Reallocation Update, *supra* note 1, at 11 min. 14 sec.; FEIS, *supra* note 2, at 3-21.
[45] Participants' Mitigation Plan, *supra* note 2, at 25.
[46] FEIS, *supra* note 3, at 2-70, tbl. 2-9.
[47] Letter from Susan C. Linner, Colorado Field Supervisor, U.S. Dep't of Interior, to Eric Laux, Project Manager, U.S. Army Corps of Eng'rs, Biological Opinion on Impacts to the Federally Threatened Preble's Meadow Jumping Mouse from the Chatfield Reservoir Storage Reallocation Project, at 37 (Aug. 8, 2013) (on file with the author) [hereinafter Biological Opinion].
[48] Biological Opinion, *supra* note 47, at 37.
[49] *Id.* at 38.
[50] *Id.* at 49.
[51] *Id.* at 44-45.
[52] *Listed Animals*, U.S. FISH & WILDLIFE SERV., http://ecos.fws.gov/tess_public/pub/listedAnimals.jsp (last visited Nov. 3, 2013).

Colorado and a small portion of southeastern Wyoming.[53] In fact, "Colorado represents a significant portion of the Preble's range."[54] Colorado also lists the Preble's in its Wildlife Action Plan.[55]

Mitigation of the impacts to Preble's is also important due to the fragile nature of the Preble's survival rate and its riparian habitat. According to the FWS, the Preble's annual survival rate is low.[56] Additionally, the FWS has indicated that the Preble's riparian habitat is but a "small percentage of the landscape," and if their habitat is destroyed or modified, "populations in those areas may decline or be extirpated. The main factor threatening the subspecies is the decline in the extent of quality Preble's habitat."[57] Finally, the FWS has described the Critical Habitat Unit ("CHU") in which the Chatfield Preble's population resides as "essential to the conservation of the Preble's."[58] In designating that area as critical habitat, the FWS recognized that proposed reservoir projects could impact portions of the CHU and thus declared that the Chatfield CHU "requires special management considerations and protections."[59]

Mitigation of Preble's habitat is not only important for the species itself but also for other wildlife in Chatfield. The participants' plan recognizes that Preble's habitat is diverse, consisting of areas such as wooded riparian habitat, riparian wetlands, and adjoining uplands.[60] These habitats "support a broad diversity of wildlife including birds, large and small mammals, reptiles, amphibians, and insects" in the park.[61] Mitigation of Preble's habitat is so crucial that the participants' plan specifically addresses mitigation of other habitat types through mitigation of Preble's habitat.[62] "Mitigation of impacts to Preble's habitat tends to drive mitigation of the other target environmental resources."[63] This means that mitigation of impacts to Preble's is one of the most important components of

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[53] *Preble's Meadow Jumping Mouse*, U.S. FISH & WILDLIFE SERV. (May 17, 2013), http://www.fws.gov/mountain-prairie/species/mammals/preble/.
[54] Press Release, U.S. Fish & Wildlife Serv., Preble's Meadow Jumping Mouse Retains Protections Under the Endangered Species Act (May 23, 2013) (on file with author), *available at* http://www.fws.gov/mountain-prairie/pressrel/2013/05232013_Prebles.pdf.
[55] *Colorado Wildlife Action Plan*, COLO. PARKS & WILDLIFE (last visited Oct. 17, 2013), http://wildlife.state.co.us/WILDLIFESPECIES/COLORADOWILDLIFEACTIONPLAN/Pages/ColoradoWildlifeActionPlan.aspx.
[56] Biological Opinion, *supra* note 47, at 22.
[57] *Id.* at 24.
[58] *Id.* at 36.
[59] *Id.* at 37.
[60] Participants' Mitigation Plan, *supra* note 2, at 43.
[61] *Id.*
[62] *Id.* at 44.
[63] *Id.* at 43.

the plan. The Commission must ensure that the plan meets all regulatory requirements and adequately mitigates for any losses.

Bird and Wildlife Habitat. The Chatfield Reallocation will also have a devastating effect on bird and other wildlife habitat. Excluding the wetlands, the proposed increase of water capacity will destroy 586 acres of bird and wildlife habitat.[64] The destruction of this habitat will significantly reduce the available forage, protective cover, breeding sites, and nesting sites used by many bird species.[65] The wildlife habitat will also be affected by the relocation of the recreational facilities and roads. The relocation of facilities, as well as the inundation, will lead to a direct loss of habitat used by threatened and endangered species. It will also result in fragmentation of habitat, increased human and wildlife interactions, and increased weed invasion into habitats.[66] In addition, many types of important vegetation will be lost because of the project. One of the most substantial vegetation losses will be the destruction of the 285 acre cottonwood forest,[67] including at minimum, 42.5 acres of mature cottonwoods.[68]

These 586 acres are habitat for a variety of different bird, plant, and wildlife species as well as a recreational draw for the park. Specifically, fifteen different bird species that are listed at the federal and/or state level as threatened or endangered use the impacted acreage.[69] Out of these fifteen bird species, three are listed as endangered, four are listed as threatened, seven are of special concern under state law, and one is listed as federally protected.[70] The destruction of these acres of habitat will also affect the 202 different species of birds that the Corps identified as occurring in Chatfield.[71] Along with bird and wildlife species, this diverse habitat range is possible or actual habitat for three federally threatened plant species.[72] The main affected plant is the Plains Cottonwood. "Plains [C]ottonwood riparian woodland is one of the rarest, most threatened and most ecologically valuable vegetation types in Colorado. The Colorado Natural Heritage program

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[64] *Id.* at 9, tbl. 1.
[65] FEIS, *supra* note 3, at 4-93.
[66] *Id.*
[67] Chatfield Reallocation Update, *supra* note 1.
[68] FEIS, *supra* note 3, at app. K, 6, tbl. ES-1; *see also* Participants' Mitigation Plan, *supra* note 2, at 9, tbl. 1.
[69] FEIS, *supra* note 3, at 4-90, tbl. 4-16.
[70] *Id.*
[71] *Id.* at F-2 to F-6.
[72] *Id.* at 3-57, tbl. 3-5.

classifies it as G2G3, S2 (globally imperiled, globally vulnerable, State imperiled)."[73] Some of these cottonwoods were there before the reservoir was built.

In addition to being important habitat for birds and other animals, the wildlife habitat has a huge recreational draw and function. For example, ASGD hosts monthly nature walks throughout Chatfield State Park.[74] The wildlife habitat, particularly the cottonwoods, also provides much needed shade to the picnic areas and wildlife viewing spots during the summer. The inundation will severely affect all of these recreational uses.

Wetlands. In addition, Chatfield Reallocation will destroy the majority of the wetlands located around Chatfield Reservoir with no assurances of successful mitigation. Wetlands are a unique, complex, and rare habitat in Colorado. If the Chatfield Reallocation occurs, approximately 159 acres of vegetated wetlands will be destroyed through inundation.[75] The construction of a new road and recreational mitigation will also adversely affect the wetlands. Half of the modifications to recreational facility areas will result in cutting and filling of wetlands.[76]

Wetlands provide many diverse important ecological functions:

> Wetlands are a productive and biologically diverse type of ecosystem. They serve many different functions including providing habitat for many different species of aquatic and terrestrial wildlife, protecting and improving water quality, storing floodwaters, protecting shorelines, recharging groundwater aquifers, and maintaining surface water flow during dry periods. Wetlands also serve as transitional areas or ecotones between terrestrial and aquatic systems.[77]

Chatfield Reservoir wetlands support a variety of wildlife, such as the Preble's and many different bird species. Out of the 159 acres that will be destroyed, 159 acres are bird habitat, and 137.4 acres are also Preble's habitat.[78]

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[73] *Id.* at 3-58, tbl. 3-5; COLORADO NATURAL HERITAGE PROGRAM, LOCATIONS AND STATUS OF RARE AND/OR IMPERILED SPECIES AND NATURAL COMMUNITIES KNOWN FROM OR LIKELY TO OCCUR WITHIN A ONE-MILE RADIUS OF THE CHATFIELD RESERVOIR FLOODPLAIN (2012) (on file with the author).
[74] *Local Field Trips*, AUDUBON SOC'Y OF GREATER DENVER, http://www.denveraudubon.org/programs/local-field-trips/ (last visited Nov. 13, 2013).
[75] Participants' Mitigation Plan, *supra* note 2, at 9, tbl. 1.
[76] FEIS, *supra* note 3, at W-6, tbl. 1.
[77] *Id.*
[78] *Id.* at 4-75.

The wetlands also offer visitors a unique, beautiful habitat to hike through and experience the wetlands and wildlife up close. These unique features are why Chatfield is such a desirable destination for visitors and groups like ASGD. Inundation of the wetlands from the reallocation will result in a loss of this amazing experience and habitat if the participants do not properly mitigate.

Parks. The proposed Chatfield Reallocation also detrimentally impacts various park features including recreational facilities, recreational experiences, and park finances. Because of the inundation "[m]any of the existing recreational facilities, day use areas, associated infrastructure and 587 acres of recreational land will become unusable. . . ."[79] Specific recreational facilities that will be inundated include the following: both boat ramps, picnic shelters, the beach area, horse shoe pits, the volleyball court in Massey Draw, all facilities at the swim beach and Deer Creek entrance, all facilities at Catfish Flats and Fox Run Group Picnic, and all facilities at Plum Creek day use area.[80]

While some facilities will be replaced, overall the park will have less appeal to visitors after the reallocation. The park is effectively losing 587 acres of wildlife habitat and recreational land due to the inundation. In addition, there will be more distance between facilities and the beach shoreline, less wildlife habitat to view, less natural shade, and unsightly mudflats from water fluctuations. The "bathtub ring" of barren, dusty mudflats surrounding the reservoir will have a particularly negative impact on the aesthetics of the park as well as on the recreational value of the beach. After the reallocation is completed, visitors will be forced to sit on a beach with at least twenty feet of dusty mud flats between them and the water shoreline. Additionally, while efforts are made to restore the shoreline, the new boat and fisherman access points will force more visitors to be concentrated in a smaller amount of space as these points will overlap with high-use areas for camping.[81] The increased crowding of people into spaces that will have to serve multiple purposes will detract from the overall recreational experience of millions of park visitors.

These many negative recreational impacts will create a huge financial burden on the park system. The decrease in recreational value is likely to lead to fewer visitors to Chatfield, which will result in less revenue for the park and overall park system. Currently, Chatfield receives approximately 1.6 million "visitor days" per year.[82] However, visitor projections for Chatfield are expected to decrease by almost eighteen percent during project construction, and then level off to a decrease between nine percent and four

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[79] Chatfield Reallocation Update, *supra* note 1.
[80] FEIS, *supra* note 3, at app. M.
[81] Participants' Mitigation Plan, *supra* note 2, at 36.
[82] *Id.*

percent after construction ends.[83] While Chatfield currently collects $2.2 million a year, the park is expected to lose $3.4 million in revenues and $15.6 million in recreation benefits over fifty years.[84] This amounts to a loss of approximately $380 thousand a year. While these sums are not broken down by revenue stream, the fact remains that the loss of money is significant especially to a park system relying heavily on visitor funding.

The expected loss of revenue from Chatfield due to the project would have lasting impacts on both Chatfield's operations as well as the state park system as a whole. Chatfield is the most heavily used state park in Colorado, and the funds from Chatfield are used to support other Colorado state parks.[85] As the state park system is now mostly reliant on user revenue for funding,[86] any loss of revenue to one of the most profitable state parks in Colorado is a critical concern. A decrease in visitor revenue could lead to shortfalls in funding that could potentially result in the closure of other state parks.[87]

C. Participants' Proposed Mitigation

Overall, the participants' mitigation plan is deficient, but the participants have proposed some beneficial mitigation to the fisheries, Preble's, bird and wildlife habitat, wetlands, and park resources.

Fisheries. The plan attempts to address some of the concerns dealing with stream habitat inundation and water quality in and downstream of Chatfield.

In order to offset the minimally estimated net loss of 0.7 miles of stream habitat on the South Platte River and Plum Creek, as well as the potential loss of downstream habitat from low or zero flow days, the plan calls for a series of measures to take place. First, the plan calls for upstream habitat improvement of up to 0.7 miles on the South Platte River.[88] The goal of this portion of stream mitigation is to improve the cold water trout fishery upstream of the Chatfield Reservoir.[89] Second, the participants will engage in the Plum Creek Project to help offset the inundated Plum Creek stream habitat as well as any

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[83] FEIS, *supra* note 3, at 2-74, tbl. 2-9.
[84] *Id.* at 2-72, tbl. 2-9.
[85] *See* Letter from Dennis Buechler, Director Emeritus, Colorado Wildlife Fed'n, to Col. Joel Cross, Commander, U.S. Army Corps of Eng'rs, Omaha Dist. 5 (Aug. 30, 2013) http://coloradowildlife.org/our-stand/cwfs-comments-re-chatfield-storage-expansion-project-feis.html; Participants' Mitigation Plan, *supra* note 2, at 11.
[86] Colorado Dep't of Natural Res., Div. of Parks and Outdoor Recreation, *5 year Financial Plan FY10-11 - FY14-15*, at 13.
[87] *Id.*
[88] Participants' Mitigation Plan, *supra* note 2, at 22.
[89] *Id.*

potential water quality issues in Chatfield Reservoir.[90] Third, the plan calls for downstream habitat improvements for up to 0.5 miles of the South Platte River in order to offset the impacts from an increased number of zero and low flow days.[91] Finally, to further minimize the downstream losses associated with zero and low flow days, the plan also depends on the good faith efforts of the participants to coordinate water releases.[92]

Water quality degradation resulting from water fluctuation, mercury, and nutrient loading are a big concern to the spawning of both the walleye and smallmouth bass. The plan's water fluctuation mitigation again relies only on good faith efforts to adjust timing and amount of water releases.[93] Specifically, the participants are committed in the Reservoir Operations Plan to limiting water releases so that no more than six inches per day leave the reservoir during walleye spawning season between March 1 and April 15.[94] However, less concrete measures exist for the smallmouth bass, as the Reservoir Operations Plan only requires participants to consult with CPW on possible ways to mitigate impacts to the smallmouth bass.[95]

Outside of fluctuation control, the plan utilizes the benefits gained from the Plum Creek restoration to attempt to offset the mercury and nutrient loading problem. The Plum Creek Project expects to improve water quality for the reservoir by reducing stream bank erosion, which will decrease the amount of sediment entering the creek and traveling to the reservoir.[96] Water quality monitoring will also be used for Chatfield Reservoir in coordination with the Chatfield Watershed Authority.[97] The project will utilize compensatory mitigation if it determines it has decreased the water quality of the reservoir or downstream of Chatfield.[98] However, any water quality issues will be measured or calculated in relation to the potential benefits to water quality from the Plum Creek Project.[99]

To address the increased low and zero flow days downstream, the Corps has required the participants to agree to pass flows through Chatfield Dam to the South Platte

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[90] *Id.* at 22, 38.
[91] *Id.* at 23.
[92] *Id.*
[93] *Id.* at 19-20.
[94] *Id.* at 20, 25.
[95] *Id.* at 25.
[96] *Id.* at 29, 37.
[97] *Id.* at 23.
[98] *Id.* at 37-38.
[99] *Id.* at 37.

River.[100] Participants will only be required to do this when there is a critical low flow during a storage event.[101] The participants will then pass flows equal to the previously documented critical low flow for that month.[102] The released flows will only help downstream water quality but not the water quality in Chatfield Reservoir.

Lastly, the plan calls for measures using water releases and water agreements to protect the Chatfield Sate Fish Unit ("CSFU"). Water releases will be used to try to prevent harm to the CSFU by ensuring the CSFU does not have too many zero or low flow days.[103] CPW intends to enter into an agreement with the Colorado Water Conservation Board guaranteeing the CSFU's right to water even if the CWCB sells unassigned storage rights to more senior water rights holders.[104]

Preble's. The plan results in some benefits to the Preble's through both onsite and offsite mitigation of critical and non-critical habitat. The participants' plan is mostly based on the Corps' Compensatory Mitigation Plan ("CMP") and incorporates the CMP by reference.[105]

The plan often refers to ecological functional units ("EFUs") gained instead of, or in addition to, acres of habitat gained. The plan utilizes an Ecological Functions Approach ("EFA") to arbitrarily quantify the outcomes of proposed mitigation activities, as well as the impacts to overlapping habitats of the various environmental resources affected by the reallocation.[106] The Corps defines EFUs as the "currency" of the mitigation plan:

> The "currency" of the [mitigation plan] is ecological functional units (EFUs). This ecological functions approach was taken because of the substantial geographic overlap in the target environmental resources. The EFUs capture the ecological functions provided by the individual target environmental resources as well as their overlap. To ensure a diversity and balance of mitigation activities, minimum levels of mitigation activities were established for Preble's . . .[107]

In order to calculate EFUs, the Corps first assigned an ecological functional value ("EFV") to various Preble's habitat types (e.g., breeding, forage, cover) on a scale of 0.0 to

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[100] Participants' Mitigation Plan, *supra* note 2, at 23.
[101] *Id.*
[102] *Id.*
[103] *Id.* at 25.
[104] *Id.*
[105] *Id.* at 5.
[106] FEIS, *supra* note 3, at app. K, attachment C C-2.
[107] *Id.* at app. K, 2.

1.0.[108] The Corps chose to use an increment of 0.25 for the Preble's EFVs.[109] The Corps then calculated the average EFV across the habitat types to obtain an ecological functional index ("EFI").[110] Finally, the Corps multiplied the EFI by the acreage for a particular area to obtain the EFUs that should be gained by mitigation in that area.[111]

Utilizing this EFA, the plan currently includes activities such as onsite and offsite conversion of one habitat type to another (e.g., grassland habitat to riparian habitat); offsite conservation of habitat targeted for mitigation; and sediment and erosion control and habitat improvements in existing Preble's critical habitat.[112] The restoration and improvement of existing critical habitat will occur within the West Plum Creek and Upper South Platte CHUs.[113] The Corps plans to mitigate the following:

- Onsite – 23 acres of critical habitat and 111 acres of non-critical habitat[114]
  - 6 acres (3 EFUs) in the West Plum Creek CHU
  - 17 acres in the Upper South Platte CHU
  - 111 acres (43 EFUs) of non-critical habitat
- Offsite – 62 EFUs of critical habitat and 167 EFUs of non-critical habitat[115]
  - 62 EFUs in the West Plum Creek CHU
  - 73 acres (1.3 stream miles) in the Upper South Platte CHU (including 4.5 miles of Sugar Creek improvements)
  - 167 EFUs of non-critical habitat

In order to complete offsite Preble's mitigation, the participants must obtain access to private lands. Over 80% of the Preble's impacted habitat will be mitigated offsite, "primarily on **private lands** upstream of Chatfield State Park in the Plum Creek and West Plum Creek watersheds."[116] In order to mitigate on private land, the Corps will place conservation easements on properties it purchases from **willing property owners,** or it will engage in conservation easement agreements with **willing owners** of properties it is unable to purchase.[117] However, according to the Corps:

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[108] *Id.* at app. K, attachment C C-13.
[109] *Id.*
[110] *Id.*
[111] *Id.* at app. K, attachment C C-14.
[112] *Id.* at app. K, 87.
[113] *Id.* at app. K, 81, 89.
[114] *Id.* at app. K, 89.
[115] *Id.*
[116] *Id.* at app. K, 60 (emphasis added).
[117] *Id.* at app. K, 63.

> Not all private owners would be willing to sell or enter into conservation easement agreements. Anecdotal information from three large successful mitigation efforts associated with habitat protection for federally listed species suggests that the percentage of potentially suitable habitat that could be protected through transactions with willing land owners **could be as low as 15 percent** of the potential properties available.[118]

Bird and Wildlife Habitat. The participants' plan only minimally addresses the impacts to bird and wildlife habitat. The plan mostly relies on deficient offsite Preble's mitigation to mitigate for bird and other wildlife habitat. The participants' plan explicitly notes that "[m]itigation of impacts to Preble's habitat tends to drive mitigation of the other target environmental resources."[119] As discussed in the Preble's section above the majority of the mitigation for Preble's and, as a result, bird and wildlife habitat, is to occur offsite. The offsite mitigation is supposed to create 368 EFUs for birds and wildlife through the acquisition and protection of an unknown amount of private lands.[120] Onsite mitigation for bird and wildlife habitat consists of only 165 acres of habitat creation and enhancement. The participants' plan also calls for mitigation of the minimally calculated 42.5 acres of mature cottonwoods.[121] To accomplish this mitigation, a combined total of 23 acres will be designated for the recruitment of new cottonwoods, 10 acres offsite and 13 acres onsite.[122] The remaining 22.5 acres will be accomplished by protecting existing mature cottonwood habitat offsite.[123]

In addition to relying on Preble's mitigation and offsite mitigation, the plan allows trees to be left between 5,439 feet and 5,444 feet after reallocation. The select area of trees is thought to amount to 61.5 acres.[124] The plan allows for the participants to agree on storage pool operation that minimizes inundation time for the trees between 5,444 feet and 5,439 feet.[125] The participants will then annually be required to evaluate the health of the trees in this zone and to continuously remove and clean up dead trees and debris.[126]

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[118] FEIS, *supra* note 3, at app. K, 69 (emphasis added).
[119] Participants' Mitigation Plan, *supra* note 2, at 43.
[120] FEIS, *supra* note 3, at app. K, 6, tbl. ES-1; *see also* Participants' Mitigation Plan, *supra* note 2, at 9, tbl. 1.
[121] FEIS, *supra* note 3, at app. K, 6, tbl. ES-1; *see also* Participants' Mitigation Plan, *supra* note 2, at 9, tbl. 1.
[122] Participants' Plan, *supra* note 2, at 50.
[123] *Id.* at 50.
[124] FEIS, *supra* note 3, at app. Z, 4.
[125] Participants' Mitigation Plan, *supra* note 2, at 51.
[126] *Id.*

Wetlands. Based on the CMP, the participants will try to replace the loss of 158 acres of wetlands through compensatory mitigation.[127] The mitigation acres will consist of an unknown amount of acreage amounting to 93 EFUs offsite and only 47 acres amounting to 30 EFUs onsite.[128] The onsite acres will come from converting grasslands to wetlands "by manipulating ground surface elevations and surface and ground water to provide hydrology adequate to support mesic riparian vegetation and wetlands."[129] Since mitigation replaces the wetlands acre for acre, the state felt it did not need to examine if supplemental water rights were required.[130] The participants' plan relies on groundwater manipulation as well as plans to select and modify the wetland location as needed so it will be supported hydraulically.[131] Supplemental water rights are only required if the mitigated wetlands would exceed the current consumptive use of the present wetlands that are being lost.[132] If such water rights are needed "[t]he Chatfield Water Providers will secure the necessary water rights and augmentation supplies. . . ."[133]

Parks. The plan, in addition to the fish and wildlife mitigation, proposes to mitigate the impacts to the park itself. At this time, the only concrete mitigation that the participants propose is to mitigate the loss or displacement of physical recreational facilities. Besides the mitigation to the facilities, the plan proposes to mitigate the many negative impacts to the park from the water fluctuations and lost revenue. The plan addresses the impacts from water fluctuation in part by using the Reservoir Operations Plan. The Reservoir Operations Plan allows participants to operate the storage pool to attempt to lessen the amount of vegetation lost from inundation due to fluctuations and to decrease the amount of shoreline left bare and unsightly.[134] These terms of the Reservoir Operations Plan mean the participants can manage how long water levels are left to certain heights so that plants that can withstand inundation and are not submerged past their ability to recover from the inundation.[135] The water fluctuation has the potential to cause a 21-foot wide mudflat, but the participants claim that a study of other similar reservoirs demonstrates that the twenty-one foot water fluctuation at Chatfield will not create unsightly mudflats.[136]

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[127] FEIS, *supra* note 3, at app. K, 28.
[128] *Id.* at app. K, 6, 24.
[129] *Id.* at app. K, 28.
[130] Participants' Mitigation Plan, *supra* note 2, at 47.
[131] *Id.*
[132] FEIS, *supra* note 3, at app. K, 53.
[133] *Id.*
[134] Participants' Mitigation Plan, *supra* note 2, at 27.
[135] *Id.*
[136] *Id.* at 26-27.

The plan also calls for the participants to reimburse the park for lost revenue caused by the reallocation. The reimbursements will only occur during construction and for up to two years after construction, with potential reimbursement for an additional three years beyond that.[137]

The plan contains some beneficial mitigation, but as discussed below, it falls short of achieving the legal requirement to balance the harms to the state's fish and wildlife resources and the need for water development.[138]

III. Legal Background

In light of the ever-increasing need for water storage projects in Colorado, proper mitigation of these damaging project impacts to fish, wildlife, and other resources is of primary concern to the State. In 1987, Colorado passed House Bill 1158 (now C.R.S. § 37-60-122.2), which attempted to mitigate the harmful environmental effects of water storage projects.[139] The law provides procedural steps by which Colorado is to arrive at an official state position on mitigation activities required for water development projects. CPW implemented regulations that govern administrative proceedings pursuant to the Commission's obligations under this law and that outline specific procedures for the Commission's evaluation of proposed mitigation plans.[140] Per these regulations, a project applicant must submit a mitigation plan to the Commission for review and must comply with strict requirements in designing its plan. In evaluating the mitigation plan, the Commission has a set of criteria that it may consider in order to conclude that a plan is "economically reasonable and reflects a balance between protecting the fish and wildlife resources and the need to develop the state's water resources."[141]

A. The Law Relevant to Impacts to Fish and Wildlife Resources

Per Colorado statute, "fish and wildlife resources are a matter of statewide concern and . . . impacts on such resources should be mitigated by project applicants in a reasonable manner . . . to the extent, and in a manner, that is economically reasonable and maintains a balance between the development of the state's water resources and the protection of the state's fish and wildlife resources."[142] With achievement of this goal in mind, a project applicant must develop its mitigation plan in compliance with a number of state regulatory

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[137] *Id.* at 64.
[138] COLO. REV. STAT. § 37-60-122.2(1)(a).
[139] H.R. 1158, 56th Gen. Assemb., 1st Reg. Sess. (Colo. 1987).
[140] COLO. CODE REGS. § 2-406-16:1602-1605.
[141] COLO. CODE REGS. § 2-406-16:1602(B)(3).
[142] COLO. REV. STAT. § 37-60-122.2(1)(a).

requirements.[143] Our comments on the Chatfield mitigation plan focus on the plan's failure to meet the following requirements:

1. "The wildlife impact assessment and recommendations for mitigating losses will be based upon a systematic evaluation of fish and wildlife resources and habitats using the **best available scientific information and professional judgment**. The plan will contain an estimated cost and assignment of development, operation and maintenance of the mitigation measures and a **monitoring plan**."[144]

2. "Normally, mitigation should occur concurrently with or prior to project development, **be proportional to impacts**, and **last for the entire period in which impacts to wildlife resources persist** as federal, state and local laws and regulations provide."[145]

Proportional is taken, as defined by Merriam-Webster, to mean, "corresponding in size, degree, or intensity." [146] As such, project participants must meet the proportionality obligation by engaging in mitigation that corresponds in size, degree, and intensity to the environmental impacts of a project. Before approving a Chatfield mitigation plan to forward to the Colorado Water Conservation Board, the Commission must ensure that the plan satisfies these legal requirements.

B. The Law Relevant to Impacts to Park Resources

Not only must the Commission ensure that the participants' plan complies with requirements for mitigating impacts to fish and wildlife resources, but it should also ensure that the plan mitigates impacts to park resources. Article 10 of the CPW statutes dictates that "[i]t is the policy of the state of Colorado that the natural, scenic, scientific, and outdoor recreation areas of this state are to be **protected, preserved, enhanced, and managed** for the use, benefit, and enjoyment of the people of this state and visitors of this state."[147] Furthermore, in its definition of the Commission's duties, Article 10 indicates that "**[t]he commission shall** . . . [a]dminister the provisions of article[] 10 . . . of this title through the division and **control, manage, develop, and maintain all state parks and state recreation areas, consistent with the state policy** as set forth in 33-10-101 [the

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[143] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)-(c).
[144] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3) (emphasis added).
[145] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(5) (emphasis added).
[146] *Proportional Definition*, MERRIAM-WEBSTERONLINE.com, http://www.merriam-webster.com/dictionary/proportional (last visited Nov. 15, 2013).
[147] COLO. REV. STAT. § 33-10-101(1).

previously quoted portion of the statute]."[148] Therefore, the Commission has a duty to evaluate the Chatfield mitigation plan to ensure that it is consistent with Colorado's policy to protect and preserve the park.

Our critique of the participants' plan for Chatfield includes a discussion of the plan's failure to meet these legal requirements for mitigation of impacts to all three types of resources–fish, wildlife, and park resources.

C. Criteria the Commission Must Consider in Evaluating a Mitigation Plan

The Commission must consider the following eight criteria below in helping to evaluate a mitigation plan:

a. The value and significance of the affected wildlife resource.
b. The potential impacts of the project and its alternatives to wildlife.
c. The availability of best existing technology to implement and monitor the success of the mitigation plan.
d. The degree to which the identified impacts are mitigated and the permanence of desired effects of the mitigation measures.
e. The cost of the planned mitigation in comparison to the benefits to the affected wildlife resource.
f. The net benefits of the project and its mitigation plan to the state's wildlife resources.
g. The consistency of wildlife mitigation with other environmental and conservation goals.
h. The legal ramifications of state water law on implementing the proposed mitigation measures.[149]

The criteria help to ensure that mitigation measures and the protection of environmental resources are appropriately balanced against the need for water development projects in Colorado.

IV. Discussion

Colorado law requires the Commission to ensure that water project participants balance protection of the state's fish and wildlife resources with development of the state's water resources. To achieve proper balance, appropriate mitigation is required. However, the participants' mitigation plan is deficient in its mitigation of the fish, wildlife, and park resources in and around Chatfield. The plan does not utilize the best scientific available scientific information and professional judgment, is not proportional to impacts, does not

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[148] COLO. REV. STAT.. § 33-10-106(1).
[149] COLO. CODE REGS. § 2-406-16:1604(B)(3)(a)-(h).

contain sufficient monitoring plans, and lacks adequate enforceability measures.[150] The result is an unbalanced mitigation plan for which the Commission should request increased mitigation to ensure that the plan achieves the requisite balance.

Our discussion of the participants' mitigation plan focuses on the impacts of the Chatfield Reallocation on the park's unique resources. First, we discuss why the plan is deficient in its mitigation of impacts to the fish and wildlife resources. Then, we discuss the inadequacies of the plan in its mitigation of impacts to park resources. Following that, we discuss how an evaluation of the plan reveals an imbalance between protecting Colorado's fish and wildlife and the necessity for water resource development. Finally, we discuss the current plan's lack of adequate enforceability measures.

A. The Deficient Plan Fails to Meet Legal Requirements to Properly Mitigate Impacts to the Fish and Wildlife Resources of Chatfield State Park.

The current plan to mitigate the devastating impacts to the abundant fish and wildlife resources in Chatfield is severely deficient. The mitigation plan does not properly mitigate the impacts to the fisheries, Preble's habitat, bird and other wildlife habitat, and wetlands. Below, we delineate these shortcomings, as well as concrete recommendations to the Commission for measures that will improve the mitigation activities and ensure that the plan complies with the Parks and Wildlife regulations.

i. Fisheries Impacts Are Not Sufficiently Mitigated as the Deficient Plan Fails to Use Best Available Science and Is Not Proportional to Impacts.

The fisheries mitigation is insufficient because there is no guarantee that the stream habitat mitigation for both upstream and downstream on the South Platte River will be proportional to the impacts,[151] and water quality was not addressed by using the best available scientific information and professional judgment.[152] First, the current mitigation plan is not proportional to the impacts of the project as there is no concrete plan to mitigate the loss of the 0.7 miles of stream habitat on the South Platte River. Currently, the plan uses the language "up to" to describe the amount of stream to be improved.[153] Because of this overly flexible language, the plan allows participants to improve little of the stream in order to be in compliance. The "up to" language gives no guarantee that a total of 0.7 miles of upstream South Platte River habitat will actually be mitigated. In addition, the participants do not address the quality of this mitigation in the plan. The 0.7 miles of

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[150] COLO. CODE REGS. § 2-406-16:1604(A)(2)-(5).
[151] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(5).
[152] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3).
[153] Participants' Mitigation Plan, *supra* note 2, at 22.

stream that will be lost are a favorite spot for anglers to fish. But the participants' plan does not address whether the in-stream improvements will create a productive accessible stream where the anglers can continue to fish. Moreover, the plan does not discuss whether the proposed upstream South Platte River habitat is in need of mitigation. To meet the proportionality requirement, the participants should properly mitigate for both lost productivity of the stream and the full 0.7 miles of habitat on a stretch of river in need of improvement.

Second, the plan is deficient because of the uncertainty regarding downstream impacts from the increased number of low or zero flow days. This could result in the project having a disproportional impact on the downstream habitat despite the proposed 0.5 miles of stream mitigation. The reason for the uncertainty is that the participants have no schedule for when they will actually draw on their stored water.[154] It is difficult, without knowing the amount and timing for released water, to predict the amount of low or zero flow days. A Chatfield Park staff member estimated that an additional 70 zero flow days will occur because of the reallocation.[155] On the other hand, the participants believe that number to be lower.[156] The one thing that is certain is that an increase in low to zero flow days will impact the habitat downstream from Chatfield.[157] There is no guarantee that the seemingly arbitrary 0.5 miles of stream habitat restoration will be in proportion to the actual damage.

Third, despite requirements that the mitigation plan use the best available scientific information,[158] there was no scientific data used to evaluate and mitigate the impacts of climate change, mercury, or the benefits of the Plum Creek Project on the reservoir's water quality. Battelle Memorial Institute ("Battelle"), an expert in water supply planning and environmental science,[159] came to a similar conclusion in its analysis of the mitigation plan. In 2011, Battelle completed an Independent External Peer Review of the proposed Chatfield Reallocation.[160] According to Battelle, climate change impacts on water quality were not adequately studied for the project.[161] Battelle commented that climate change is

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[154] FWRMP Presentation Nov. 15, 2013, *supra* note 24.
[155] Willoughby, *supra* note 33; *see also* Chatfield Reallocation Update, *supra* note 1.
[156] FWRMP Presentation Nov. 15, 2013, *supra* note 24.
[157] Participants' Mitigation Plan, *supra* note 2, at 4-49 – 4-50.
[158] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3).
[159] Battelle Memorial Institute is a nonprofit science and technology organization with technical expertise in water supply planning, environmental science, hydrology and hydraulics engineering, and economics. *See generally* BATTELLE, http://www.battelle.org/ (last visited Nov. 25, 2013).
[160] *See* Battelle Report, *supra* note 36.
[161] Battelle Report, *supra* note 36, at A-28.

likely to result in extended periods of mixing in Chatfield Reservoir.[162] The result of increased mixing from climate change is a high frequency of water quality criteria exceedance, which in turn negatively impacts the aquatic ecosystem.[163] Additionally, there was no scientific evaluation of the potential for increased mercury levels in the reservoir and the resulting impacts on fisheries or human health. While a water quality monitoring program is expected, the solution to any issues, including a mercury problem, is an unknown compensatory mitigation project which may not even be directed at Chatfield Reservoir.[164] Mercury is a serious issue that needs more than compensatory mitigation in order to be safely resolved.

In addition, there was no scientific evaluation used to determine if the reduction in sediment from the Plum Creek Project would actually offset the degradation in water quality from the project. Again, if the project participants find the water quality was not offset to an adequate extent, then only compensatory mitigation is planned. Compensatory mitigation of an unknown extent and nature is not enough to mitigate for water quality issues in and downstream from the reservoir. Active measures to improve the water quality must be implemented for the reservoir using the best available technology in order to preserve the fisheries and human health.

Finally, the participants did not use the best available science and professional judgment when assessing the impacts of water fluctuations on water quality. The participants claim that the increased water in the reservoir will improve the quality for the fisheries.[165] This, however, is not based on scientific fact and does not take into account that the participants' water supplies are not dependable.[166] Moreover, any potential benefit incurred from increased water levels will be offset by long-term water fluctuations, mercury, and the uncertainty of benefits from the Plum Creek Project. The plan attempts to mitigate for water fluctuations by having the participants commit to the Reservoir Operations Plan.[167] The Reservoir Operations Plan relies only on good faith efforts though to maintain a stable water level during the walleye-breading season.[168] Even less concrete

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[162] *Id.*
[163] *Id.*
[164] Participants' Mitigation Plan, *supra* note 2, at 37.
[165] FWRMP Presentation Nov. 15, 2013, *supra* note 24.
[166] FEIS, *supra* note 3, at app. BB, 6; *Chatfield Lake, CO Cost of Storage for M&I Water Supply*, *supra* note 7.
[167] Participants' Mitigation Plan, *supra* note 2, at 19-20.
[168] *Id*. at 20, 25.

measures exist for the smallmouth bass, as the Reservoir Operations Plan only requires participants to consult with CPW on possible ways to mitigate impacts to the species.[169]

❖ **Recommendations to the Commission to Ensure the Deficient Plan Meets Legal Requirements and Properly Mitigates Fisheries Impacts.**

In order to offset these many negative impacts and the deficiencies in the participants' plan, the Commission should require that the participants add the following to the plan:

- The Commission needs to ensure that the participants' mitigation of the South Platte River's 0.7 miles of stream habitat is proportional. To accomplish this, the Commission should require that the participants fully mitigate the 0.7 miles of lost stream habitat and not merely "up to" 0.7 miles, and require that the stream be a productive and accessible fishing spot for the anglers.

- The Commission needs to ensure proportional mitigation for the downstream impacts to fisheries. If low or zero flow days result in greater impacts to stream habitat than anticipated, the 0.5 miles of mitigated habitat will be insufficient. The Commission should require the participants to mitigate more than 0.5 miles of downstream habitat should these additional impacts occur. In addition, the Commission should require development of the environmental pool that has been discussed in the participants' plan.[170] The pool will allow for a more consistent release of water from Chatfield to help mitigate the low and zero flow days downstream.

- The Commission should require the participants to gather scientific information on the potential impacts of mercury on the reservoir as well as on the impacts of sediment removal from the Plum Creek Project. The participants should also develop concrete plans for mitigating these impacts. To evaluate the potential benefits from the Plum Creek Project, the participants should review the data from Cherry Creek Reservoir. Cherry Creek Reservoir had similar stream restoration projects and could provide decent estimates on benefits to water quality.

- As recommended by the Battelle Report, the Commission should require the participants to perform a scientific assessment on how climate change may

[169] *Id.* at 25.
[170] *Id.* at 24.

impact the long-term water quality of the reservoir.[171] The information from that evaluation should be incorporated into the Reservoir Operations Plan for long-term implementation.

- The Commission should require that the participants adhere to the Reservoir Operations Plan to help mitigate water quality issues created by fluctuating water levels. In addition, the Commission should require establishment of the environmental pool. The environmental pool, while helping with low and zero flow days, will also help reduce the water quality issues produced by the water fluctuation in Chatfield Reservoir.

ii. Preble's Impacts Are Insufficiently Mitigated as the Plan Does Not Use Best Available Science, Fails to Proportionally Mitigate Habitat Loss, Lacks Sufficient Monitoring, and Relies on Uncertain Land Acquisition.

The plan to mitigate impacts to Preble's is deficient for four primary reasons: 1) The plan does not use the best available scientific information and professional judgment[172] within its EFA; 2) the mitigation is not proportional to impacts[173] because lost critical habitat will be replaced with existing critical habitat, resulting in a net loss of 155.2 acres of critical habitat; 3) the plan does not contain a sufficient monitoring plan[174] to ensure that the participants do not exceed the Incidental Take Statement issued by the FWS; and 4) there is significant risk that not enough private landowners will be willing to provide land for offsite habitat mitigation.

The current plan for Preble's impacts fails to use the best available scientific information and professional judgment.[175] Battelle experts concluded that the "[l]ack of explanation for EFV scoring and the use of seemingly subjective scoring and ranking analyses could produce results that are unrepeatable and do not have any clear ecological meaning, ultimately affecting the justification for the mitigation proposed."[176] In reaching this conclusion, Battelle noted,

> It is not clear why the scoring/ranking indices used 0.25 increments in the EFV scoring system when any values between 0 and 1.0 could have been used. **No basis for this incremental scoring is provided**, and resulting

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[171] Battelle Report, *supra* note 36, at A-28.
[172] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3).
[173] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(5).
[174] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3).
[175] *Id.*
[176] Battelle Report, *supra* note 36, at A-34.

> scores may not be sensitive enough to detect changes or differences. The scores for upland areas and the low value riparian system seem to be too low, and are not explained or justified. These areas are generally in designated critical habitat for the [Preble's Meadow Jumping Mouse] and should be afforded extra protection. . . . It is also not clear from the information provided how the 1.25 [and 1.5] . . . multipliers were developed . . . as there are **no scientific references** to support these increments.[177]

In its comments to the Corps on the Final Integrated Feasibility Report and Environmental Impact Statement ("FEIS"), ASGD also described doubts on the use of an EFA. The EFA not only utilizes an arbitrary EFV increment of 0.25 for Preble's habitat but also uses weighting factors that inflate EFUs for offsite mitigation.[178] By using weighting factors, the Corps is able to reduce the acres required for mitigation of Preble's habitat. The U.S. Department of Interior, CPW, and ASGD, among others, have all suggested weighting factors not be used to calculate EFUs.[179]

In addition to its failure to use the best available scientific information, the current plan also fails to meet the regulatory requirement that mitigation should be proportional to impacts.[180] As it currently stands, the mitigation plan will result in a net loss of 155.2 acres of Preble's critical habitat. The acres to be mitigated in the West Plum Creek and Upper South Platte CHUs are already designated critical habitat, as is the mitigation area on Sugar Creek in the Pike National Forest. Therefore, lost critical habitat will only be replaced with existing critical habitat. If Chatfield loses critical Preble's habitat, it should be replaced with newly created or suitable unoccupied habitat not within the designated CHU. Otherwise, the park will experience a net loss of critical habitat for the Preble's.[181]

Finally, the plan for Preble's mitigation does not meet the CPW regulatory requirement that it contain a monitoring plan.[182] Although the Preble's mitigation includes a monitoring plan, the plan is insufficient. As mentioned earlier, the FWS issued an Incidental Take Statement to the Corps permitting the loss of 646 individual Preble's mice.[183] The Biological Opinion also points out that "[t]his take [of 646 individual Preble's mice] will be difficult to detect because of the Preble's small size, solitary nature, and

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[177] *Id.* (emphasis added).
[178] FEIS, *supra* note 3, at app. K, 70-71.
[179] ASGD comments on FEIS, *supra* note 25, at 37.
[180] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(5).
[181] ASGD comments on FEIS, *supra* note 25, at 34.
[182] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3).
[183] Biological Opinion, *supra* note 47, at 49.

hibernation underground."[184] Furthermore, "[i]f, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring the reinitiation of consultation . . . ."[185] This means that if the participants exceed the incidental take, they must meet with the FWS for another Endangered Species Act consultation to assess the project's impacts on the Preble's. This limit on the take of mice and the difficulty in detecting take means the mitigation plan must contain a monitoring plan to track the number of mice killed from the project. Such a plan should document the number of mice taken, the location of the take, as well as how and when the take occurred. This information could be used to decrease the number of takes, as well as serve a role in any new consultation required under the FWS permit.

Beyond the failure to comply with regulatory requirements, the current plan is also deficient because of considerable uncertainty in the Corps' ability to acquire private lands for offsite mitigation. In order to mitigate for the incredible loss of Preble's habitat, the plan is to complete 711 EFUs of offsite mitigation on private lands, which amounts to 80% mitigation of Preble's habitat.[186] The Corps presumes, based on "anecdotal information" from other projects, that it will be able to obtain only 15% of the available private properties.[187] Despite such a nominal projection, the Corps still manages to calculate the offsite EFUs gained at 739, which conveniently exceeds the goal of 711.[188] To compute these EFUs, the Corps utilizes a complicated multi-step calculation, using the 15% estimate as well as a number of weighting and other factors.[189] However, calculations demonstrate that a number of EFUs gained through offsite mitigation are highly sensitive to the actual percentage of available private property acquired. If the Corps were to obtain only 14% of available private lands, the total EFUs gained drops to 689 from 739, which does not meet its goal of 711 EFUs. If only 10% of the available property is obtained, the total EFUs gained plummets to 492. Therefore, 15% is the minimum percentage of available land the Corps must acquire to meet the mitigation plan's goals. Yet, the Corps is uncertain if it will be able to obtain even 15%, as it bases the estimate on "anecdotal information." No margin of safety is in place for offsite Preble's mitigation. If the plan is to mitigate 80% of Preble's habitat offsite on private lands, 15% of the available property must be acquired.

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[184] *Id.*
[185] *Id.* at 50.
[186] FEIS, *supra* note 3, at app. K, 89.
[187] *Id.* at app. K, 69.
[188] *Id.* at app. K, 70-71.
[189] *Id.*

❖ **Recommendations to Ensure the Deficient Plan Meets Legal Requirements and Adequately Mitigates Loss of Preble's Habitat.**

Although the deficiencies in the current mitigation plan for the Preble's are significant, the Commission is in a position to strengthen the plan and ensure it meets the necessary legal requirements. Based upon the deficiencies outlined above, the Commission should implement the following changes to the mitigation plan before submitting the plan to the CWCB:

- To ensure the use of the best available scientific information and professional judgment,[190] the EFA approach should be modified to "further describe and quantify the methods used to develop the incremental analysis used in the EFV, including weighted multipliers . . . ."[191] The Commission should require the Corps to either explain how it came up with the arbitrary 0.25 increment for EFV scoring and ranking indices, or utilize a smaller increment that is sensitive enough to detect differences in habitat areas. Additionally, the Corps should not utilize weighting factors that inflate EFUs for offsite mitigation.

- To offset the net loss of 155.2 acres of Preble's critical habitat, the Commission should require the participants to petition the U.S. FWS to add another CHU in Colorado or to extend the range of an existing CHU for the Preble's. Adding another or extending an existing CHU would create new critical habitat rather than just replacing lost critical habitat with existing.

- In order to have the least amount of impact to Preble's, the clearing of vegetation for the project should be timed appropriately. The Commission should require that the mitigation plan limit vegetation clearing to the period from July 15 through September 15.[192] Per the FWS' Biological Opinion,

> As much as possible, any clearing of vegetation prior to initial filling to the new multipurpose pool level should be timed to avoid impacts to Preble's and other wildlife. Clearing of Preble's habitat during hibernation (September - May) could kill hibernating mice. Clearing during Preble's breeding (June - mid August) could disturb maternal nests. . . . While any extensive clearing will cause direct impact to

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[190] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3).
[191] Battelle Report, *supra* note 36, at A-34.
[192] This period also takes into account the migratory bird nesting season, as required by the Migratory Bird Treaty Act. *See infra* Part IV.A.iii.

wildlife, late summer may be the best time to clear vegetation in areas thought to support Preble's.[193]

By limiting vegetation clearing to this period, harm to Preble's can be reduced and, therefore, the plan will more closely align with the requirement that mitigation be proportional to impacts.[194]

- Mitigation plans are required to contain monitoring plans,[195] and as such, the mitigation plan must contain a proper plan to monitor the take of Preble's mice from the project. The Commission should require that the mitigation plan include a detailed strategy (documenting the number of mice killed, the locations, and the cause of death) for monitoring the deaths of Preble's so the take permitted by the FWS is not exceeded.

- As the uncertainty of acquiring private lands for offsite mitigation is so high, the Commission should mandate that a minimum of 15% of available property rights be obtained before project commencement. Further, to incentivize private property owners to engage in conservation agreements with the Corps to meet the 15% minimum, the Commission should direct the CDNR to aid in communicating the benefits of such agreements (e.g., tax benefits) to property owners.

iii. Bird and Wildlife Habitat Impacts Are Insufficiently Mitigated as the Deficient Plan Fails to Use Best Available Science and Professional Judgment and Is Not Proportional to Impacts.

The Chatfield Reallocation will negatively impact at least 586 acres of bird and wildlife habitat. The impacts to this diverse habitat range are not adequately mitigated by the participants' plan. The plan fails to meet the legal requirements to use the best available scientific information and professional judgment[196] for bird habitat modeling. The plan also fails to be proportional to project impacts[197] stemming from unmitigated impacts, construction timing, and disproportional habitat replacement.

First, the plan is legally required to use the best available science and professional judgment.[198] The bird habit model was the only model in the plan that was not reviewed

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[193] Biological Opinion, *supra* note 47, at 20.
[194] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(5).
[195] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(3).
[196] *Id.*
[197] COLO. CODE REGS. § 2-406-16:1604(A)(2)(a)(5).
[198] *Id.*

by an outside consultant to ensure the use of best available science and professional judgment. For instance, an outside source, Battelle, reviewed the Preble's model, and the wetlands model was a Colorado-specific model developed by multiple sources including Colorado State University, the Environmental Protection Agency, and the Colorado Department of Transportation ("CDOT").[199] Currently, only the Corps reviewed the bird habitat. An independent expert such as Battelle should have also reviewed the bird habitat model to ensure the best available science and best professional judgment were used for mitigation.

Second, the plan is also legally required to proportionally mitigate project impacts, the participants' plan allows for unmitigated habitat damage. If the project has unmitigated habitat damage, then the project's impacts will be disproportional to the mitigation. One way the plan allows project impacts to be disproportionate to mitigation is by allowing tree impacts to go unmitigated. At this time, the plan does not mitigate for 61.5 acres of trees between 5,439 feet and 5,444 feet if the trees do not survive inundation. The participants propose to leave the 61.5 acres of trees standing through inundation and then monitor the acres to determine if the trees survive.[200] However, if the 61.5 acres of trees die, then the participants will clear cut the trees.[201] The additional destruction of 61.5 acres of trees will not be mitigated under the participants' current plan. The potential loss of an additional 61.5 acres of tree habitat for birds and wildlife means the project impacts may increase without appropriate mitigation.

While impacts to trees between 5,439 feet and 5,444 feet may go unmitigated, impacts to valuable cottonwoods may also go unmitigated. Cottonwood impacts may go unmitigated as there do not appear to be accurate estimates on the amount of cottonwoods impacted. Specifically, neither the FEIS or the participants' plan includes estimates of impacted cottonwood acreage in the Deer Creek and Plum Creek areas. These areas are known to have cottonwoods, but these cottonwood areas are not included in the current mitigation plan. Current estimates place the amount of impacted mature cottonwoods at 42.5 acres.[202] However, the failure to include Deer Creek and Plum Creek acreage means 42.5 acres is the minimum amount of mature cottonwoods impacted. The impacts to the cottonwoods in Deer Creek and Plum Creek will go unmitigated unless participants reassess the cottonwood acreage impacted by the project.

Along with failing to mitigate for certain impacts, the plan also allows for disproportionate impacts to migratory birds by not creating a time for vegetation clearing.

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[199] ASGD comments on FEIS*, supra* note 25, at 40.
[200] FEIS, *supra* note 3, at app. Z, 4.
[201] *Id.*
[202] *Id.* at app. K, 6, tbl. ES-1; *see also* Participants' Mitigation Plan, *supra* note 2, at 9, tbl. 1.

Depending on the time of year when vegetation clearing and inundation occur, the project impacts will be higher than anticipated. If vegetation clearing occurs during migration seasons for different bird species, then migratory birds protected under the Migratory Bird Treaty Act will be adversely impacted in their wintering, as well as in resting and nesting, due to untimely habitat destruction. If this occurs, then the project impacts will be higher than anticipated for habitat destruction because the project will disrupt bird migration.

The plan is also disproportionate in its impacts to birds and wildlife because it results in a net loss of at least 22.5 acres of mature cottonwoods. The net loss is the result of the plan only protecting an existing 22.5 acres of cottonwoods instead of proportionally replacing the lost habitat with newly planted cottonwoods. By protecting an existing 22.5 acres of mature cottonwoods, the mitigation measures are still resulting in a net loss of mature cottonwoods rather than a true replacement corresponding to the size of the impact. Additionally, the loss of these mature cottonwoods could be further compounded as no plans exist for additional mitigation if the recruitment acreage does not create thriving cottonwoods. If the recruitment acreage fails, then the failure to plan for the unsuccessful cottonwoods could mean the participants' plan results in a net loss of at least 42.5 acres of mature cottonwoods.

- **Recommendations to Ensure the Deficient Plan Meets Legal Requirements and Properly Mitigates Loss of Bird and Wildlife Habitat.**

The Commission has the responsibility to correct the insufficiencies in the participants' plan to ensure it meets the necessary legal requirements to use the best available science and professional judgment[203] and to be proportional to impacts.[204] Based upon the deficiencies outlined above, the Commission should implement the following changes to the mitigation plan before submitting the plan to the CWCB:

- To insure that the mitigation plan is based upon the best scientific information and professional judgment, an outside source should examine the bird habitat model. The Commission should require the participants to bring in an outside source such as Battelle to review the bird habitat model to make sure it accurately reflects the impacts the habitat will face.

- For the project mitigation to be proportional to the impacts,[205] the Commission should require that if any additional trees are lost between 5,439 feet and 5,444 feet, then additional commensurate mitigation should occur.

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[203] COLO. CODE REGS. § 2-406-16:1604(A)(2)(c)(3).
[204] COLO. CODE REGS. § 2-406-16:1604(A)(2)(c)(5).
[205] *Id.*

- To assure mitigation is proportional to the impacts on cottonwoods, the Commission should require the participants to reassess the total amount of cottonwoods impacted by the project. An objective expert such as the Colorado National Heritage Program could conduct a reassessment of the cottonwood acreage impacted.

- In order to minimize project impacts to bird habitat, the Commission should require that the plan limit vegetation-clearing to the period from July 15 through September 15.[206] By keeping vegetation clearing in line with the FWS' recommendation, the project impacts will be minimized so as not to exceed the planned mitigation. Specifically, the timeline to incorporate comes from the following FWS' Biological Opinion, which states that:

  > Clearing also should be timed to avoid impacts to nesting birds consistent with provisions of the Migratory Bird Treaty Act (16 U.S.C. 703-712 et seq.), which prohibits the taking, killing, possession, transportation and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. The primary migratory bird nesting season extends from April 1 to July 15.[207]

- To further minimize project impacts, the Commission should require the participants' plan to mitigate by creating 22.5 acres of new cottonwoods rather than by replacing lost habitat with existing habitat. Also, to prevent a net loss of the full 42.5 acres of mature cottonwoods, the Commission should require mitigation to be planned for any failed cottonwood regeneration acres.

iv. Wetlands Impacts Are Inadequately Mitigated as the Deficient Plan Fails to Address Permanence, Proportionality, and Monitoring.

The participants' plan is deficient in mitigating for the loss of 158 acres of wetlands as the plan does not sufficiently address concerns of wetland permanence by securing supplemental water rights, is not proportional to the impacts on wetlands, and does not establish sufficient monitoring.[208] In fact, the participants' plan is mostly silent on wetlands mitigation, which means the CMP will serve as the primary means for wetlands mitigation.

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[206] This period also takes into account the Preble's hibernating and mating seasons, as suggested by the Biological Opinion. *See supra* Part IV.A.ii.
[207] Biological Opinion, *supra* note 47, at 20.
[208] COLO. CODE REGS. § 2-406-16:1604(A)(2)(c)(3), 1604(A)(2)(a)(5).

The participants' plan fails to address the wetlands requirements for permanence as legally required.[209] Specifically, the plan fails to adequately address whether supplemental water rights will be needed to establish viable wetlands. At what point supplemental waters would start to be discussed is unclear, and the discussion would probably be too late. The CMP admits that, at the very least, supplemental water rights will likely be required to start and sustain the wetlands.[210] However, despite admitting there may be at least a temporary need for supplemental water rights,[211] the plan never addresses where the water rights will come from or if there will even be water rights for the participants to purchase. The plan also fails to discuss the sustainability of these wetlands during drier years without supplemental water rights. It is likely supplemental water rights would be needed to sustain wetlands during drier years, and, again, these water rights are not planned for. The failure to adequately consider supplemental water rights jeopardizes the permanence of the wetlands mitigation. The effects of failing to obtain adequate supplemental water rights can be seen in the failed CDOT mitigation wetlands at Denver Botanic Gardens. These wetlands were part of the C-470 mitigation plan, but due to a lack of a reliable water source, they have never become fully functional.[212] And the problem has never been fixed.

In addition, the participants' plan does not provide for sufficient monitoring. The chance of success in creating a new functional wetland is low.[213] EPA recently assessed the success of wetland mitigation. The assessment was bleak.[214] The study revealed multiple issues with "plant survival, adequate irrigation, maintenance/removal of vegetation."[215] In many cases, created wetlands are low quality and poor imitations of natural wetlands.[216] The most pertinent issue in regards to Chatfield Reallocation is that the EPA found that the success of a created wetland "may not be apparent until 10 to 40 years after the project is completed."[217] Under the proposed plan, the participants only have to meet certain standards for three years for the particular mitigation activity to be deemed successful.[218]

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[209] COLO. CODE REGS. § 2-406-16:1604(A)(2)(c)(5).
[210] FEIS, *supra* note 3, at app. K, 53.
[211] *Id.*
[212] ASGD comments on FEIS*, supra* note 25.
[213] Richard F. Ambrose, *Wetland Mitigation in the United States: Assessing the Success of Mitigation Policies*, 19 WETLANDS (AUSTL.) 1, 2 (2000), *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/2004_10_28_wetlands_ambrose_wetlandmitigationinus.pdf.
[214] *See id.*
[215] Ambrose, *supra* note 213, at 12.
[216] *Id.* at 2.
[217] *Id.* at 22-23.
[218] FEIS, *supra* note 3, at app. K, 53.

This is not an appropriate monitoring period to ensure the wetlands are successful and will function in perpetuity.

Lastly, the amount of wetland mitigation is not proportional to the inundation impacts for three reasons, 1) the creation of new wetlands is not guaranteed, or likely, to succeed; 2) if the wetlands are created, the quality will likely be inferior to natural wetlands; and 3) the majority of the wetlands mitigation is offsite, meaning no proportional replacement of wetlands for the park and visitors. As noted previously, artificial wetlands are typically not successful.[219] As all 158 acres of wetlands will be artificial wetlands, the potential exists for a net loss of 158 acres of wetlands. Further, artificial wetlands are often very poor substitutes for naturally occurring ones, and do not usually fully mitigate the impacts.[220] The EPA study stated that the quality of produced wetlands is usually low.[221] As such, even if the participants created viable wetlands, those wetlands would not correspond in quality to the lost 158 acres of wetlands from Chatfield. Lastly, even if the participants created viable wetlands, the majority of this unique habitat would be offsite. As a result of mitigating the majority of the wetlands offsite, the park and visitors will lose most of the recreational experiences associated with the wetlands. With all the deficiencies listed above, the mitigated wetlands will likely be a low quality that does not correspond to the lost wetlands. As a result, the plan for wetlands mitigation will not fully mitigate the destruction of the 158 acres of natural wetlands.

- **Recommendations to Ensure the Deficient Plan Meets Legal Requirements and Sufficiently Mitigates Impacts to the Wetlands.**

The Commission has the duty to correct the insufficiencies of the participants' plan to make sure it meets the necessary legal requirements. Based upon the deficiencies outlined above, the Commission should implement the following changes to the mitigation plan before submitting the plan to the CWCB:

- The participants need to determine whether they can obtain supplemental water rights in order to guarantee the permanence of any created wetlands. The Commission should require the participants to determine what water rights they might acquire in connection with the creation of the new wetlands. If no supplemental water rights are available, the Commission should require the participants to move the offsite wetlands to an area where water rights could be obtained. If, however, supplemental water rights are available, the Commission should require the participants to obtain those rights. By requiring this, the

[219] *See* Ambrose, *supra* note 213.
[220] Ambrose, *supra* note 213, at 2.
[221] *Id.*

public will have a better chance to experience successful wetlands rather than experiencing a net loss of the unique habitat.

- For artificial wetlands to have a chance at becoming highly successful, the Commission should require a ten-year period to show success. The EPA's study of artificial wetlands found that a ten-year period was the minimum time necessary to establish a long-term successful wetland. By extending the current three-year period to ten years, the Commission would ensure that the participants have created a functional wetland.

- Along with the use of an extended monitoring period, the Commission should also require additional oversight by the Project Coordination Team for offsite and onsite wetlands. The oversight should fully monitor the critical flaws found by the EPA in its mitigation study, which included plant survival, irrigation, and the maintenance of vegetation. The use of targeted oversight will ensure the wetlands mitigation is more in proportion with project impacts because adequate oversight lessens the chance the wetlands will either be of inferior quality or fail entirely.

B. The Deficient Plan Fails to Adequately Mitigate the Loss of Recreational Experiences at the Park and Impacts to the Park's Long-Term Finances.

The participants' plan is deficient in its mitigation of the loss of recreational experiences at the park and the resulting impacts to Chatfield's long-term finances. In order for the Commission to abide by its duty to protect, preserve, enhance, and manage Chatfield,[222] it must ensure that the participants' plan sufficiently mitigates these impacts. In terms of addressing impacts to recreational experiences, the plan (1) does not mitigate for the effective loss of 587 acres of wildlife habitat and recreational land that will be inundated; (2) fails to mitigate for potential weed proliferation; and (3) does not include an appropriate plan for mitigating water fluctuations that will result in a "bathtub ring" of mudflats around the reservoir. These impacts to recreational experiences will create a large financial burden for the park that the participants failed to adequately consider: (1) they did not include an appropriate visitor displacement assessment and a corresponding revenue loss adjustment; (2) they failed to evaluate how revenue loss at Chatfield will affect the rest of Colorado's state park system; and (3) they did not include a suitable proposal to reimburse the park for its revenue losses. Furthermore, the participants' mitigation plan imposes unnecessary financial liabilities on CPW for capital improvements and an environmental pool to mitigate for increased zero and low flow days.

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[222] COLO. REV. STAT. § 33-10-106(1).

At this time, the participants' plan only contains concrete plans to mitigate the loss or displacement of physical recreational facilities but not plans to mitigate the losses to the park's recreational experience. First, the deficient plan does not mitigate for the 587 acres of wildlife habitat and recreational land at the park that will be lost to inundation. These acres of park will forever be lost and unusable by park visitors.

Second, weed control is left to the participants' responsibility with no guarantees on how the participants will mitigate for weed proliferation or to what extent.[223] This is particularly concerning in light of a nuisance plant species, the Eurasian watermilfoil, that is present in the park.[224] This nuisance species is currently limited in location to the Cigar Pond above Chatfield Reservoir, but the plant will be closer to the reservoir because of the shifting shoreline from the project.[225] The closer proximity of the nuisance species to the new reservoir shoreline may allow the plant to permeate the reservoir and upset the balance of the aquatic environment. Additionally, removing native vegetation, as is planned for the Chatfield project, creates a perfect opportunity for the Eurasian watermilfoil to invade and take over a system.[226] While such an invasion has not been properly assessed, the plant's natural tendency to form thick mats on the water surface is likely to be detrimental to boating, fishing, and swimming in the reservoir.[227] The mitigation plan should require more concrete planning and accountability from the participants especially in regards to dealing with the Eurasian watermilfoil.

Third, the deficient plan does not adequately mitigate for the effects of water fluctuations on the recreational experiences at Chatfield. The plan calls for the use of the Reservoir Operations Plan to offset the impacts of water fluctuations.[228] While using the Reservoir Operations Plan to offset water fluctuation impacts has merit, the decisions concerning water fluctuation impacts should not be left to the sole judgment of the participants. CPW and Chatfield's staff should have a place in the decision-making of how to best set water levels to offset these impacts.

Also, the aesthetics of the park, which are a draw for many in the state, will be severely affected by water fluctuations, with little adequate mitigation planned for the loss. For instance, existing vegetation surrounding the reservoir will be removed and the water

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[223] Participants' Mitigation Plan, *supra* note 2, at 28.
[224] Chatfield Reallocation Update, *supra* note 1, at 23 min. 50 sec.
[225] *Id.*
[226] *Eurasion watermilfoil (Myriophyllum spicatum)*, MINN. DEP'T OF NATURAL RESOURCES, http://www.dnr.state.mn.us/invasives/aquaticplants/milfoil/index.html (last visited Nov. 8, 2013).
[227] *Id.*
[228] Participants' Mitigation Plan, *supra* note 2, at 27.

fluctuations will create giant, barren mudflats around the reservoir and between the beach and water (see Photo1 and Figures 1 and 2 below). "Under [the chosen alternative], the water would fluctuate the most; therefore, mudflats and shoreline rings would be more visible than with any other alternative."[229] The participants claim that a study of other similar reservoirs demonstrates that the twenty-one foot water fluctuation at Chatfield will not create unsightly mudflats.[230] However, the study relied upon does not demonstrate if the reservoirs studied were subject to the enormous water fluctuations that Chatfield will see over the years.[231] First, the study compares "large," "moderate," and "minor" fluctuations at other reservoirs (without ever quantifying them) to the twenty-one foot fluctuation at Chatfield, and concludes that Chatfield is similar.[232] Second, the study does not compare the hydrological regimes of the other reservoirs to Chatfield. Lastly, the reservoirs for comparison are used by entities with mostly senior, agricultural water rights. These reservoirs will be filled with water every year, but Chatfield will not be after the reallocation, since the participants are all junior water rights holders. As such, it seems unlikely that the study relied upon could adequately demonstrate mudflats will not be an issue for Chatfield and its visitors. Water fluctuations are also likely to lead to increased weed overgrowth, increased mosquito populations, and increased shoreline erosion.[233]

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[229] FEIS, *supra* note 3, at 4-118.
[230] Participants' Mitigation Plan, *supra* note 2, at 26-27.
[231] FEIS, *supra* note 3, at app. HH, 2-4.
[232] *Id.*
[233] Participants' Mitigation Plan, *supra* note 2, at 26.

Photo 1: Looking East from Perimeter Road - Current Conditions
Source: savechatfield.org

Figure 1: Looking East from Perimeter Road – Simulated Post-Reallocation Low-Water Conditions
Source: savechatfield.org

Figure 2: Looking East from Perimeter Road – Simulated Post-Reallocation High-Water Conditions
Source: savechatfield.org

These negative recreational impacts will put a heavy financial burden on the park system because the decrease in aesthetics and recreational value is likely to lead to fewer visitors, which will result in less revenue for the park. The deficient plan does not adequately mitigate for these impacts. The independent expert, Battelle, concluded that the CMP did not properly assess the displacement of visitors and the impact of such displacement on estimated revenue loss;[234] and the participants' plan does not include such an assessment either. As Battelle discussed, the mitigation plan does not consider whether nearby recreational sites, such as South Platte Park, can accommodate displaced visitors.[235] "If nearby sites do not have the capacity to accommodate the displaced visitors, then all of the recreation benefits to these displaced visitors will be lost."[236] As a result, the estimates of the loss of recreational benefits for the project are likely underestimated, and, in turn inadequately mitigated. The failure to properly assess visitor displacement likely means that overall visitor loss, and therefore the loss of revenue to the park system, has been grossly underestimated.

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[234] Battelle Report, *supra* note 36, at A-10.
[235] *Id.*
[236] *Id.*

The participants also did not evaluate how the loss of revenue at Chatfield might impact the rest of the wholly visitor-funded state park system of Colorado. Visitor projections are expected to decrease by almost eighteen percent during project construction, and the park is expected to lose $3.4 million over fifty years.[237] Chatfield is the most heavily used state park in Colorado, and the revenues from Chatfield are used to fund other state parks in Colorado.[238] Because the state park system heavily relies on user revenue for funding,[239] any significant loss of revenue to one of the most profitable state parks in Colorado could potentially result in the closure of other state parks.[240] The participants' plan does not contain any mitigation for these likely financial impacts to Colorado's state park system.

Further, while reimbursement for park losses is proposed, the reimbursements will only occur during construction and for up to two years after construction, with potential reimbursement for an additional three years beyond that.[241] However, this is inadequate reimbursement to Chatfield and the state park system, which is projected to lose millions in revenue over the course of a fifty-year analysis.[242] Specific calculations demonstrate that just six years after the project, the park can expect to continue experiencing over a four percent decrease in visitation and, in turn, its revenue.[243] The project is the source of these financial losses, and the project is intended to benefit the participants. Therefore, the participants should bear the long-term financial repercussions of the project and not the park and state park system. Reimbursing Chatfield for the $3.4 million that it is expected to lose over 50 years is minimal compared to the hundreds of millions of dollars that the participants are willing to spend on this project. The current plan to only reimburse the park's losses for up to five years after construction is inadequate, as it misplaces the financial consequences on the park, rather than on the project beneficiaries.

The participants' plan not only fails to appropriately mitigate for the park's financial losses from the project, but it also imposes inappropriate financial liabilities on CPW for an environmental pool and capital improvements to Chatfield. The plan states that an

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[237] FEIS, *supra* note 3, at 2-72 to 2-74.
[238] *See* Letter from Dennis Buechler, Director Emeritus, Colorado Wildlife Fed'n, to Col. Joel Cross, Commander, U.S. Army Corps of Eng'rs, Omaha Dist. 5 (Aug. 30, 2013) *available at* http://coloradowildlife.org/our-stand/cwfs-comments-re-chatfield-storage-expansion-project-feis.html; Participants' Mitigation Plan, *supra* note 2, at 11.
[239] Colorado Dep't of Natural Res., Div. of Parks and Outdoor Recreation, *5 year Financial Plan FY10-11 - FY14-15*, at 13.
[240] *Id.*
[241] Participants' Mitigation Plan, *supra* note 2, at 64.
[242] FEIS, *supra* note 3, at 2-72, tbl. 2-9.
[243] *Id.*

environmental pool will potentially be created to mitigate for increased zero and low flow days.[244] If the pool is needed, the participants will only collaborate with CPW in creating it but will not contribute any financial resources.[245] If this pool is needed to offset the low and zero flow days, it should not fall upon CPW to pay for it. The plan also requires CPW to reimburse the participants for a 50/50 share of the costs to complete capital improvements that "were delayed due to the pending outcome of the Reallocation Project."[246] The Corps has firmly indicated that "[t]he water providers would be responsible for any specific construction and/or operational costs associated with the reallocation action, environmental mitigation costs, and recreational modification costs."[247] CPW has been forced to delay these improvements and the resulting benefits to park users for a long period of time while the participants and the Corps completed their plans for reallocation. If not for this project and the impacts it will have on Chatfield's resources, this environmental pool would not be necessary, and the capital improvements would not have been delayed. Moreover, the participants have repeatedly stated that no taxpayer dollars will be used for the reallocation. Therefore, the participants, not CPW and Colorado taxpayers, should bear the full financial burden for these activities.

❖ Recommendations to Ensure the Plan Is in Line With the Commission's Mission to Protect, Preserve, Enhance, and Manage Chatfield.

In order to correct the deficiencies in the participants' plan and the negative impacts of the project, the Commission should require additional recreational and financial park mitigation. By requesting these necessary modifications, the Commission will ensure that it is complying with its duty to "control, manage, develop, and maintain all state parks and state recreation areas, consistent with the state policy" to protect, preserve, enhance, and manage outdoor recreation areas.[248]

- Specifically, the Commission should require the participants to acquire, and transfer into public ownership, 587 acres of land adjacent to the park so that the acreage of recreational land can remain the same.

- To deal with the Eurasian watermilfoil and other weed control issues, the Commission should require the mitigation plan to have more concrete planning and accountability from the participants. This will reduce the likelihood of weed

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[244] Participants' Mitigation Plan, *supra* note 2, at 24.
[245] *Id.*
[246] *Id.* at 61.
[247] FEIS, *supra* note 3, at ES-14.
[248] COLO. REV. STAT. § 33-10-106(1).

proliferation and its detrimental impacts to boating, fishing, and swimming in the reservoir.

- The Commission should require that CPW and Chatfield's staff be included in the decision-making for how to best set reservoir water levels to offset fluctuation impacts to the park. The Commission should also request that the participants complete a more appropriate study of the potential for mudflats around the reservoir that may result from water fluctuations. Both of these modifications will reduce the impacts to recreational experiences at Chatfield.

- The Commission should require the participants to conduct a visitor displacement assessment and to adjust the expected revenue loss accordingly. An assessment and adjustment would insure the park is adequately protected and preserved for the future in order to bring the plan into compliance with the Commission's mission.

- So that the participants can present an appropriate evaluation of all financial impacts of the project, the Commission should require them to perform a detailed assessment of the impacts that revenue loss at Chatfield will have on the state park system as a whole.

- The Commission should require the participants to reimburse the park for its revenue losses for 50 years after the completion of the project. The formula for calculating reimbursement could remain the same and allow the participants to generate a cumulative credit. However, the obligation to pay the park for any lost revenue should be imposed on the participants for longer than five years. The park and park system should not be unduly burdened by a project that is not for their benefit.

- The participants should bear the entire financial liability of an environmental pool and any capital improvements to Chatfield that have been delayed while reallocation has been finalized. The Commission should require the participants' plan to clearly state that CPW will not have to pay for upfront, or reimburse the participants, for such costs.

C. The Deficient Plan Does Not Strike a Balance Between Protecting Fish and Wildlife Resources and the Need to Develop Colorado's Water Resources.

In addition to the mandatory requirements that the Commission must ensure are followed by mitigation plans for state water projects, the Commission may also use the

following eight criteria per 2 CCR 406-16:1604(B)(3)(a)-(h) in making their recommendation on a mitigation plan:

a. the value and significance of the affected wildlife resource;
b. the potential impacts of the project and its alternatives to wildlife;
c. the availability of best existing technology to implement and monitor the success of the mitigation plan;
d. the degree to which the identified impacts are mitigated and the permanence of desired effects of the mitigation measures;
e. the cost of the planned mitigation in comparison to the benefits to the affected wildlife resource;
f. the net benefits of the project and its mitigation plan to the state's wildlife resources;
g. the consistency of wildlife mitigation with other environmental and conservation goals;
h. the legal ramifications of state water law on implementing the proposed mitigation measures.[249]

The goal of weighing these criteria is to determine whether "the mitigation plan is economically reasonable and reflects a balance between protecting the fish and wildlife resources and the need to develop the state's water resources."[250] We examine each criteria in more detail below. This analysis demonstrates that the participants' plan is not economically reasonable and disproportionately impacts the fisheries, terrestrial wildlife, and the park's financial and recreational resources.

First, as outlined in detail throughout the letter, the value and significance of the wildlife resources affected by the Chatfield Reallocation are extensive. The project impacts a multitude of resources that include a variety of wildlife species and their unique habitats. These affected habitats and species include the walleye and trout fisheries, critical and non-critical habitat for the threatened Preble's mouse, a minimum of 42.5 acres of mature cottonwoods that serve as bird and other wildlife habitat, and, finally, 159 acres of wetlands that serve as habitat for different bird and aquatic species.[251] These fish and wildlife resources are not only intrinsically valuable but also attract a large number of park visitors who engage in fishing, bird-watching, horseback-riding, hiking, and wildlife-photography. Because the value and significance of the wildlife resources impacted by the project are so unique to Chatfield, this criterion weighs against the adequacy of the participants' plan.

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[249] COLO. CODE REGS. § 2-406-16:1604(B)(3)(a)-(h).
[250] COLO. CODE REGS. § 2-406-16:1604(B)(3).
[251] *See* Participants' Mitigation Plan, *supra* note 2.

Second, the potential impacts of the participants' chosen alternative for the project are far reaching and extremely damaging to the park's wildlife resources. These impacts include the potential loss of Chatfield Reservoir as a walleye fish spawning site and the destruction of 454 acres of Preble's habitat, 586 acres of bird and other terrestrial wildlife habitat, at least 42.5 acres of mature cottonwood trees, and 159 acres of natural wetlands.[252] Furthermore, an examination of the alternatives to the chosen project reveals that the chosen option is by far the most environmentally damaging of the four assessed. The other three project alternatives considered by the Corps included: (1) a no-action alternative, (2) the use of Non-Tributary Ground Water with gravel pits, and (3) the use of gravel pits, Non-Tributary Ground Water, and a smaller amount of water reallocation.[253] All of these alternatives have less adverse impacts to and require less mitigation for wetlands, bird habitat, terrestrial wildlife habitat, and Preble's habitat.[254] Alternative 1 will inundate about 75% less land, have no water quality impacts, and result in minimal vegetation loss.[255] Alternative 2 will only inundate nine acres of wetlands and will destroy even less vegetation than Alternative 1.[256] And Alternative 4 will have similar impacts to Alternative 3 but on a considerably smaller scale.[257] Additionally, ASGD's preferred alternative calling for a combination of gravel pits, water conservation, and the use of existing infrastructure like Rueter-Hess, would have even fewer environmental impacts.[258] Because there are less damaging project alternatives and the impacts of the participants' choice are extremely adverse to fish and wildlife resources, this criterion weighs against the adequacy of the participants' plan.

Third, the participants' plan does not indicate whether the best existing technology will be utilized to monitor the success of this mitigation. Currently, a significant amount of monitoring will have to be done to ensure that the project impacts are adequately addressed. Newly established wetlands, which are difficult to create, will have to be monitored to ensure their permanence. The take of Preble's mice will have to be monitored to stay within the permitted amount. And water quality will have to be monitored to safeguard against dangerous levels of mercury or pollutants. Because the deficient plan does not contain technologically acceptable monitoring for these activities, this criterion weighs against the adequacy of the plan.

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[252] *Id.*
[253] FEIS, *supra* note 3, at 2-65 to 2-75, tbl. 2-9.
[254] *Id.*
[255] *See* FEIS, *supra* note 3, at 2-67 to 2-77, tbl. 2-9.
[256] *Id.*
[257] *Id.*
[258] ASGD comments on FEIS, *supra* note 25, at 17.

Fourth, the proposed mitigation does not identify and mitigate project impacts to a sufficiently high degree or with a sufficient intent of permanence for the desired mitigation effects. The mitigation of impacts to many different habitats is not met with a 1:1 ratio for habitat replacement, as can be seen in the net loss of 155.2 acres of Preble's critical habitat. Additionally, successful mitigation is not guaranteed, which means permanent mitigation effects are uncertain. An example of a previous project that demonstrates the need to strive for permanence is the C-470 project, which required the mitigation of wetlands just outside Chatfield. Unfortunately, the required wetlands were never permanently established because there was no focus on successful establishment, which would have required the acquisition of adequate water rights to support the wetlands long-term. As a result, the lack of focus on permanent mitigation effects created a net loss of wetlands for the state. For Chatfield, there is no emphasis on establishing permanent wetlands and ensuring adequate water rights are obtained for long-term success. Failure to mitigate the project's impacts to an adequate degree and to ensure the permanence of mitigation means this criterion also weighs against the plan's adequacy.

Fifth, the high cost of the proposed mitigation ($115, 964, 300) is in fact commensurate with the benefits to the affected wildlife resources. The benefits of mitigation are well worth the costs to create new wildlife habitat and recreational resources. Some of these benefits include the creation of wetlands, improvement of Preble's habitat that in turn improves bird and other wildlife habitat, the utilization of a temporary CPW resident engineer,[259] and improvements to Plum Creek. Without these benefits, there would be total loss of unique habitats and recreational resources to the park. Further, the Commission can ensure these benefits are achieved by implementing our recommendations for additional mitigation measures. Because the cost of mitigation is reasonable compared to the benefits to the wildlife and the park, this criterion weighs in favor of the plan's sufficiency.

Sixth, while the participants' plan proposes some benefits, the net benefits of the project and its mitigation plan are insufficient compared to the project's adverse impacts. As repeatedly stated, the reallocation will have extremely harmful effects on Chatfield's wildlife resources–it will disrupt the walleye and trout fisheries and destroy 454 acres of Preble's habitat, 586 acres of bird and other wildlife habitat, at least 42.5 acres of mature cottonwood trees, and 159 acres of natural wetlands.[260] Additionally, the project is expected to have a zero dependable yield because it involves junior water rights holders.[261]

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[259] Participants' Mitigation Plan, *supra* note 2, at 60.
[260] *See id.*
[261] FEIS, *supra* note 3, at app. BB, 6; *Chatfield Lake, CO Cost of Storage for M&I Water Supply*, *supra* note 7.

While the project's goal is to increase the availability of water to the greater Denver Metro area in a manner that is sustainable over a fifty-year period, the reservoir will only be filled approximately 18% of the time.[262] As a result of the project's lack of dependable water yield and adverse impacts to wildlife including a net loss of habitat, the project has no net benefit. If the Commission implements our recommendations, then the project may realize at best a net neutral impact. However, without the recommended additional mitigation, this criterion also weighs against the project and mitigation plan.

Seventh, the proposed wildlife mitigation plan is inconsistent with other environmental and conservation goals of both the state and federal government. First, the net loss of 155.2 acres of Preble's mouse critical habitat is inconsistent with the protective mission of the Endangered Species Act, which lists the Preble's mouse as threatened.[263] In addition, the negative impacts to the Preble's are inconsistent with Colorado's Wildlife Recovery and Conservation Plan, which lists the Preble's as a state threatened species.[264] Second, the destruction of the cottonwood forest and negative impacts on the water quality and flow in the reservoir and river are inconsistent with the Migratory Bird Treaty Act. This Act seeks to conserve and protect migratory birds and to restore or develop adequate wildlife habitat.[265] The current mitigation plan does not adequately address the impact that the destruction of the cottonwood forest will have on migratory birds, which depend on the forest for nesting and resting. Efforts should be made in the mitigation plan to replace forest at a 1:1 ratio and to replace more onsite in the park. Additionally, the mitigation plan does not adequately plan for the impact of poor water quality and low flow rates on migratory ducks. These ducks use the reservoir and South Platte River as a resting place in their annual migratory route. The poor water quality and low flow rate will negatively affect the wintering ducks that spend the winter season in and around Chatfield. The plan should require the participants to look at the impacts of mercury and sewage in the reservoir, and to guarantee few low or zero flow days during the migration seasons for different bird species. Third, the mitigation plan is not consistent with Colorado Parks and Wildlife's mission to "protect, preserve, enhance, and manage for the use, benefit, and enjoyment of the people of this state and visitors of this state. . ." outdoor, natural, and

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[262] FEIS, *supra* note 3, at 2-65, tbl. 2-9.
[263] *Species Profile Preble's Meadow Jumping Mouse*, U.S. FISH & WILDLIFE SERV., http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0C2 (last visited Nov. 4, 2013).
[264] *Colorado Endangered, Threatened and Species of Special Concern*, COLO. PARKS & WILDLIFE, http://wildlife.state.co.us/WildlifeSpecies/SpeciesOfConcern/Mammals/Pages/MammalsOfConcern.aspx (last visited Nov. 4, 2013) .
[265] 16 U.S.C. § 715(i)(a).

scenic recreational areas.[266] The plan does not adequately protect, preserve, or enhance the park's natural resources as it allows for the destruction of over 700 acres of the park[267] with only eleven percent mitigated onsite.[268] Additionally, the net loss of different habitat types does not protect the wildlife of the park in such a way as to preserve the recreational experience for future park visitors. The plan should require more onsite mitigation of impacts, as well as require more 1:1 mitigation measures. Further, the plan should have less emphasis on compensatory mitigation and more emphasis on avoidance and minimization in order to fulfill the mission of CDOW. Overall, the multiple conflicts between the mitigation plan and different state and federal conservation goals show this criterion also weighs against the adequacy of the participants' plan.

Eighth, and finally, potential legal ramifications on state water law exist under the participants' plan. A great deal of uncertainty exists about whether there is adequate ground water available to create permanent, sustainable wetlands. A "temporary supplemental water supply"[269] is likely needed in order to establish the wetlands, and supplemental water rights could be needed to ensure the artificial wetlands are sustainable long-term. As a result, the need for additional water rights implicates state water law because it may lead to litigation over the source of these supplemental water rights. Overall, the potential legal ramifications of obtaining supplemental water rights to create wetlands for mitigation show this criterion also weighs against the adequacy of the mitigation.

In reviewing the weighing criteria for the participants' plan, the majority of criteria weigh heavily against the current plan. There are still unacceptable consequences to wetlands, fisheries, terrestrial habitat for birds and Preble's, and park resources. Less damage would occur to the fisheries, which are a valuable statewide resource used for fishing and to stock state waters and trade with other states, under any of the other project alternatives. Under the chosen alternative, fisheries will suffer a potential loss of spawning and will receive no net benefit from the project. The bird habitat area, which consists of a rare and valuable cottonwood forest, is not mitigated proportionally and will receive no net benefit from the project. Destruction of bird habitat is counter to the purpose of the Migratory Bird Treaty Act and is being done despite availability of project alternatives that are less damaging to the habitat. The wetlands, which are a significant and valuable habitat to both birds and aquatic life, are not guaranteed an adequate degree of long-term

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[266] COLO. REV. STAT. § 33-10-101(1).
[267] *Basic Facts*, SAVECHATFIELD.ORG, http://www.savechatfield.org/content/more-information/basic-facts-about-the-chatfield-reallocation/ (last visited Nov. 18, 2013).
[268] FEIS, *supra* note 3, at app. K, 92, tbl. 8.
[269] *Id.* at app. K, 53.

mitigation or any net benefits from the project. They will be destroyed despite project alternatives that are less damaging to wetland habitat. The Preble's, another valuable wildlife resource, will also suffer a net loss of 155.2 acres of critical habitat while receiving no net benefit from a project that has less damaging alternatives. As a result of the criteria weighing heavily against the participants' plan, greater protections need to be implemented to adequately protect the fish and wildlife resources against a highly destructive water storage project with little dependability.

D. The Deficient Plan Lacks Adequate Enforceability Measures to Ensure Successful Mitigation.

Unfortunately, the participants' current plan lacks adequate enforceability measures to ensure that all of the important mitigation objectives are successful. The enforcement contracts between the Corps, CDNR, and the participants are referred to in the Corps' FEIS.[270] They are also discussed in the participants' plan,[271] but they are not included in the participants' plan for the Commission to review. Additionally, adequate enforcement is uncertain based on the lack of non-governmental stakeholder representation on the mitigation oversight committees, as well as the nonbinding language used in the participants' plan (e.g., "if practicable," "good faith efforts"). To avoid the likelihood of failed mitigation, the Commission needs to make sure the participants' plan contains strong enforcement mechanisms. Chatfield is too valuable as a state wildlife and economic resource to let it be ruined.

Proper enforcement is key to a successful mitigation plan. Discussing, planning and proposing mitigation objectives and solutions is all well and good, but when it comes time to actually mitigate, it is easy for things to fall through the cracks. The failed mitigation of wetlands for the C-470 project is a good example of this, and environmental mitigation in general has a sad history of failure. In 1994, the EPA did a study of thirty mitigation projects in the San Francisco Bay-Delta region.[272] The EPA surveyed these projects to assess their compliance with the approved mitigation plans.[273] Out of the thirty projects, only three of them complied with 100% of the imposed requirements, six had 85-99% project compliance, another six had 75-84% project compliance, twelve had 45-74% project compliance, one had 1-14% project compliance, and two had 0% project compliance.[274] "Good mitigation policies do little good if there is no enforcement. The

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[270] *Id.* at 6-9, tbl. 6-3.
[271] Participants' Mitigation Plan, *supra* note 2, at 6.
[272] Ambrose, *supra* note 213, at 11-12.
[273] *Id.*
[274] *Id.*

present lack of enforcement allows inadequate efforts to be considered successful and illegal actions (e.g., failing to construct a required mitigation project) go undetected."[275]

Enforcement of the mitigation for reallocation impacts will supposedly be governed by contracts between the Corps, CDNR, and the participants. The Corps has overarching authority over the project, as well as over CDNR and the participants.[276] The Corps has final approval power over the project plans and the ultimate responsibility for the completion of mitigation requirements.[277] To establish this organizational structure, two contracts are currently being developed–the Water Storage Agreement ("WSA") and the Reallocated Storage Users Agreement ("RSUA").[278] The WSA will be between the Corps and CDNR and will grant CDNR the right of storage in Chatfield in exchange for CDNR's "commitments to fulfill all the financial and mitigation obligations."[279] The RSUA will be between CDNR and the participants and will outline the financial responsibilities, as well as the mitigation obligations, of the participants to CDNR.[280]

In order to facilitate the fulfillment of mitigation obligations, the participants claim that the WSA will create a Project Coordination Team ("PCT"), and that the RSUA will create a nonprofit called the Chatfield Reservoir Mitigation Company ("Mitigation Company").[281] The PCT will oversee the entire project. The PCT members will consist of representatives from the Corps, the State of Colorado, and project participants.[282] The Mitigation Company will carry out the participants' obligations to the CDNR and CPW by managing the implementation of the participants' plan.[283]

These enforcement measures are deficient in several ways that will hinder the oversight and success of the mitigation. First, the FEIS and the participants' plan only refer to these contracts as in the process of development. The actual contracts are not included in the participants' plan for the Commission to review. The failure on the part of the Corps and participants to fully develop these contracts at this point in time weakens the mitigation plan. These contracts are key components, and without these contracts the participants are not bound by the mitigation plan. Furthermore, these contracts may contain terms that are not favorable to CPW, or they may contain provisions that allow the

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[275] *Id.* at 23.
[276] Participants' Mitigation Plan, *supra* note 2, at 6.
[277] *Id.*
[278] *Id.*
[279] *Id.*
[280] FEIS, *supra* note 3, at app. K, 93.
[281] *Id.*; Participants' Mitigation Plan, *supra* note 2, at 6.
[282] Participants' Mitigation Plan, *supra* note 2, at 6.
[283] *Id.* at 65.

participants to avoid certain obligations. The participants are avoiding their obligation to the Commission by failing to present these contracts to the Commission to review.

In addition, the PCT committee charged with mitigation oversight is only comprised of representatives whose interests are in limiting costs and obtaining water storage. The Corps has a financial interest in the increased water storage because it owns the reservoir and leases out water storage space to the participants; the State of Colorado has an interest in acquiring more storage for future water needs; and the participants will receive the direct benefits from the project. Notably, none of the non-governmental stakeholders listed in the participants' plan,[284] who have a vested interest in successful mitigation, are represented on the PCT committee. Therefore, the absolutely necessary oversight of mitigation will be completed by the three entities who have the most interest in water storage and in limiting project costs, rather than the long-term success of mitigation.

Finally, the participants' plan is lacking adequate enforceability because of the repeated use of nonbinding language throughout the plan. The participants have chosen to describe many of the mitigation activities in the plan using ineffectual terms, such as "[i]n general, Project Participants . . . will use good faith efforts,"[285] or "[t]o the degree practicable,"[286] or "[t]his plan may be changed from time to time. . . ."[287] Language like this does not appear to bind the participants to their duties under the mitigation plan. If the plan is to be considered enforceable and will be included in a memorandum of understanding, it should contain more compulsory language, such as "shall," "must," or "to [a specific] degree." The environmental and park resources that will be severely impacted by this project cannot afford reliance on diluted "good faith efforts" for mitigation by the participants.

Accountability will be a key component for the successful mitigation of the devastating impacts from this project. As the 1994 EPA study and the failed C-470 wetlands mitigation demonstrate, project participants often do not fulfill their promises to mitigate environmental impacts. To prevent this failure in the Chatfield Reallocation, contracts like the WSA and RSUA should contain third-party beneficiary clauses. A third-party beneficiary clause allows enforcement of a contract by individuals who are not original parties to, but who benefit from, the contract. Such clauses will allow stakeholders affected by the Chatfield Reallocation and its mitigation to enforce the contracts against the Corps, CDNR, and the participants. Without third-party beneficiary clauses, these agreements will only be self-enforcing. The public will once again have to rely on the

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[284] *Id.* at 14.
[285] *Id.* at 20, 23, 38.
[286] *Id.* at 44, 45, 52.
[287] *Id.* at 20.

project participants to fulfill their mitigation promises without any method for recourse if they do not. Failure to include these third-party beneficiary clauses will only signal to the public that the parties wish to retain the option to shirk their responsibilities. But if the participants add these clauses to the contracts, they will signal to the public that they are willing to be held accountable for fulfillment of their promises. If the Corps, CDNR, and participants carry out all of their contractual duties to mitigate, third-party beneficiary enforcement will create no additional burden on the parties..

- **Recommendations to Ensure the Deficient Plan Contains Adequate Enforceability Measures for Successful Mitigation.**

The Commission has the responsibility to correct the insufficiencies of the participants' plan to make sure it contains appropriate enforceability measures. With these corrections, the plan will align with the Commission's duty to "control, manage, develop, and maintain all state parks . . . consistent with the state policy" to protect, preserve, enhance, and manage outdoor recreation areas.[288] Based upon the deficiencies outlined above, the Commission should implement the following changes to the mitigation plan before submitting the plan to the CWCB:

- The Commission should request that the WSA and RSUA contracts be made available to the Commissioners for review. This will ensure that the contracts contain terms that appropriately address mitigation responsibilities, are favorable to CPW, and do not allow the participants to avoid certain obligations.

- In making sure mitigation is completed in full, the PCT committee should include representatives from other identified stakeholders. The Commission should request that representatives from the non-governmental stakeholders list in the participants' plan,[289] like ASGD, be added to the PCT committee. This will give the committee a more appropriately balanced approach when handling issues related to the project and its mitigation.

- To ensure objective monitoring of mitigation efforts, the Commission should require the participants to fully fund an objective third-party (such as Colorado Natural Heritage Program) oversight of the mitigation activities, progress, and fulfillment. The Commission should also require the participants to hire a restoration ecologist to assist with this objective oversight.

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[288] COLO. REV. STAT. § 33-10-106(1).
[289] Participants' Mitigation Plan, *supra* note 2, at 14.

- The Commission should request that the participants revise their mitigation plan to replace most, if not all, of the nonbinding language. This will ensure that the participants are appropriately bound by the terms of the plan and that the plan's detailed mitigation efforts are carried out in full.

- In order to bolster the overall enforceability of the participants' plan, the Commission should request that the participants utilize third-party beneficiary clauses in the enforcement contracts. The participants should add either a general third-party beneficiary clause or a specific third-party beneficiary clause that allows stakeholders like ASGD to enforce the contracts.

V. Conclusion

Overall, the participants' plan is insufficient as it fails to use best available science in mitigating impacts to fisheries, the Preble's mouse habitat, bird habitats, and wetlands. Further, the plan fails to proportionately mitigate the loss of wildlife resources as it does not offer a 1:1 ratio of replacement or the same quality of habitat as now exists. The participants' plan also does not adequately mitigate the many impacts of the project to park recreational and financial resources. The participants' plan also completely fails to mitigate the loss of 587 acres of public lands. Along with the failure to mitigate important resources proportionally using the best available science, the plan also fails to set up objective monitoring to oversee mitigation. The plan's failure to meet all statutory requirements, as well as the failure of the plan to fall in line with the Commission's duties, means the Commission should require further planning and mitigation.

The Commission's goal is to weigh how the participants' plan protects fish and wildlife resources against the need for state water projects. Weighing the criteria to determine if this balance is struck demonstrates the project is grossly unbalanced. The project damages fish, wildlife, and park resources while creating zero dependable yield and failing to comply with statutory obligations. The Commission should require the participants' plan to include the previously discussed recommendations so the plan will fulfill legal requirements and prevent serious damage to the state's wildlife and park resources.

Before coming to a decision on this important project, ASGD would urge the Commissioners to personally visit Chatfield State Park and assess the areas that will be inundated or impacted by the mitigation. For more information on the project or visuals on how the project will impact Chatfield, please visit savechatfield.org.

Sincerely,

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