Senate Agriculture & Natural Resources

04/03/2024 Upon Adjournment

HB24-1117 Invertebrates & Rare Plants Parks & Wildlife Commn

Typed Text of Testimony Submitted

Name, Position, Representing	**Typed Text of Testimony**
Don Cameron For City of Golden	Dear Honorable Agricultural Committee Members, It strikes me, in commenting on HB24-1117, with our full throated support from the city council in Golden, that there could not be a more important committee hearing this bill. Perhaps your name could be, "life would not exist were it not for agriculture committee". In as much as humans like to claim eminence at the top of the food chain, we could not be here, nor enjoy our quality of life, were it not for the invertebrates and their foods (native plants) that do so much of the work in our food web. As a member of the city of Golden legislative subcommittee I speak for the city council in supporting the study of, and hopefully the preservation of invertebrates and their food sources. Golden has implemented one pesticide-free park and working toward another 8 this year, with the primary goal of increasing safety for users, as well as increased habitat for native plants and invertebrates. This legislation to study the value-add of invertebrates is a great starting point, but frankly I'm disappointed to see many of the provisions sunset in 2029. It would be my (our!) hope that the studies reveal the impacts both qualitative and quantitative of our invertebrate population, and lead to further protections eventually. It is not hyperbole to state, based on what is already known about the food-web, that invertebrates, through their work, dispose of much of our waste products, pollinate myriad plants, provide food, and are consumed by higher vertebrates, and the list goes on. When looking for budget cuts people may see this relatively small investment as easy pickings. We would argue that long term that is "penny wise and pound foolish".

	Thank you for your consideration of this matter. Regards, Don

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Testimony in support of HB 24-1117: Invertebrates & Rare Plants 3 April 2024
Senate Agriculture & Natural Resource Committee

Members and chair of the committee,

Thank you for the opportunity to testify in support of this bill. I am an Entomology Curator Adjoint in the CU Museum of Natural History and Assistant Professor Adjunct in the Dept of Ecology and Evolutionary Biology at the University of Colorado, Boulder. I'm here today representing myself, not the University, but am testifying from more than two decades of experience in studying insects and plants.

I was also one of 14 scientists who recently co-authored the Dept of Natural Resources *Pollinating Insects Health Study*, and specifically reviewed the status of pollinators in CO, the results of which were alarming. For example:

- **More than 20% of Colorado's bumble bee species** are petitioned or under review by the USFWS for federal protection under the Endangered Species Act.
- As Colorado is home to **1/10th of all the bumble bee species in the world**, our state is at the forefront of global biodiversity loss.
- **Plants and insects make up over half** of all federally protected species in CO, and yet our state lacks authority to manage or conserve them, which could help keep them from needing federal protection.
- Some species are now **very likely to go extinct**, and in the very near future.
- The western bumble bee, for instance, has disappeared from half of its range in the past 20 years, and is **predicted to disappear entirely by 2050**, unless states and agencies work together to study and stem their decline.

These facts are alarming because our insects and plants are crucial to our agricultural and natural resources. Pollinators contribute to hundreds of millions of dollars of crops, from Rocky Ford cantaloupes to Paoia peaches, and across our rangelands help sustain over **5 Billion dollars of livestock every** year. Moreover, plants and insects are the basis of natural food webs, sustaining all wildlife, contributing to our cultures, tourism, economy, and quality of life.

This bill supports the first two priorities we outlined in our report: to conserve pollinators and the plants that they depend on. In a study recently released by the CSU Human-Animal Policy Center, **over 85% of 800 surveyed Coloradans** said they would vote to grant Colorado Parks and Wildlife authority over pollinating insects. Ultimately, this bill is crucial in ensuring the sustainability of not only invertebrates and rare plants but of all our natural resources.

Thank you for the opportunity to testify today and I highly recommend you support this bill.

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April 2, 2024

Testimony from CNHP for HB24-1117- Invertebrates and Rare Plants

Dear Committee Chair, and members of the Senate Agriculture and Natural Resources Committee,

Thank you for the opportunity to testify today in support of this bill.

I am a botanist, and the director and chief scientist of the Colorado Natural Heritage Program (CNHP). CNHP is a soft funded, non-academic department of the Warner College of Natural Resources at Colorado State University. CNHP serves as the state's curator of data on plants, invertebrates, other animals, and the natural plant communities of Colorado. Since 1979, we have worked closely with DNR to develop, manage, and share data on Colorado's biodiversity priorities, supporting their management decisions. We track data on 665 rare plants and 168 rare invertebrates. This bill will dramatically improve the quality and completeness of these data.

CNHP partners with CPW to bring data on plants and invertebrates to everyone in Colorado through CODEX, Colorado's premier mapping and reporting tool for conservation data.

These data are used by developers and planners to appropriately site projects and avoid sensitive species. Knowing where our natural heritage resources are provides regulatory assurance and reduces risks for projects.

CPW needs robust data on plants and invertebrates to prevent extinction and to make sure Federal protection is truly warranted when granted. Decisions on Endangered Species Act listing status are made based on known populations and ranges.

Some plants and invertebrates in Colorado have previously been thought to be extremely rare, and with careful mapping, observations, studies, and collaboration with experts and partners, we now know that these species are not threatened with extinction. This work allows us to assign the highest priorities to

the species that we know are truly imperiled, and clear unnecessary impediments to projects.

Colorado is ready for this bill. There have been years of collaborative work across agencies, universities, and NGOs, and CPW has cultivated deep partnerships that set the stage for success. Current statewide planning efforts like Colorado's Outdoor Strategy, Statewide Comprehensive Outdoor Recreation Plan, State Wildlife Action Plan, Private Lands Conservation Roadmap, Outdoor Regional Partnership Initiative, and the Pollinating Insects Health Study are guiding efforts that are ready to put conservation of plants and invertebrates into action in the service of all Coloradans.

CPWs Natural Areas Program is already protecting distinctive sites for rare plants and invertebrates through an innovative voluntary agreement process.

This bill will bestow an important and appropriate role on CPW, that will empower them to lead critical conservation efforts for Colorado's diverse plants and invertebrates. We are eager to partner with CPW to help fulfill the statutory requirements of this bill.

Thank you for the opportunity to offer testimony!

Yours truly,

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Ensure Colorado has Monarchs and Other Pollinators for Future Generations

Allow Colorado Parks and Wildlife to study and conserve pollinators and rare plants

Support Colorado House Bill 24-1117

(Bill Sponsors: Rep. McCormick, Rep. Soper, Sen. Marchman)

Three insects that are at-risk in Colorado (L–R): monarch butterfly, western bumble bee, and large marble butterfly. (Photos: USFWS Midwest; Stephen Ausmus, USDA ARS; Chris Halsch.)

Why Colorado House Bill 24-1117 Matters

Colorado Parks and Wildlife (CPW) plays a vital role in the conservation of the state's wildlife. Conservation actions by CPW can effectively protect and recover vulnerable wildlife populations, circumventing the need to list species under the Endangered Species Act. Yet, CPW does not currently have management authority over insects like monarchs and bees or other types of invertebrates, except mollusks and crustaceans. House Bill 24-1117 provides the ability for CPW to study and take steps to conserve rare and declining invertebrates and plants. Specifically, the bill adds rare plants and invertebrates to the species that may be studied and conserved under the current "Nongame, Endangered, or Threatened Species Conservation Act," which is renamed the "Nongame, Endangered, or Threatened Wildlife and Rare Plant Conservation Act."

Why Care About Pollinators and Other Invertebrates

Invertebrates such as butterflies and bees are at the heart of a healthy environment. Invertebrates pollinate most flowering plants, including many of the fruits, vegetables, nuts, and seeds that both humans and wildlife depend on—and they further support food production by controlling agricultural pests. The vast majority of birds, bats, and freshwater fish depend on invertebrates for food. Invertebrates clean our streams and rivers by filtering water, and help recycle plant, animal, and human waste. One study found that native insects are worth more than $80 billion each year to the U.S. economy.

Monarch butterflies have declined by 80–95%, and more than 20% of Colorado's bumble bee species are in decline. Additionally, a study published in the journal *Science* found that western butterflies are losing approximately 25% of their population numbers every 20 years. This means fewer insects for pollination, for birds and fish to eat, and for all of the other services they provide

A survey done by Colorado College found that 89% of the people in Colorado believe that the loss of pollinators such as bees and butterflies is a "serious" problem, with two thirds (67%) ranking it as "extremely / very serious."

House Bill 24-11171 is a win–win for wildlife and the people of Colorado and will help ensure that Colorado's mountain meadows continue to be filled with flowers, its crops continue to be pollinated, and the state's birds, bats, and fish continue to be fed.

XERCES SOCIETY for Invertebrate Conservation · Colorado Native Plant Society · Colorado Natural Heritage Program · Colorado Trout Unlimited · Audubon Rockies · Audubon Colorado Council · People Pollinators Action Network

Scientist Letter of Support for Colorado House Bill 24-1117

We, the undersigned scientists, are writing to show our support for Colorado House Bill 24-1117, which would allow Colorado Parks and Wildlife to manage and conserve rare native plants and native invertebrates including pollinating insects such as monarchs, other butterflies, bumble bees and other important insect species.

Colorado Parks and Wildlife (CPW) is vital to the management and conservation of the state's wildlife. Conservation actions by CPW can effectively recover vulnerable wildlife populations, circumventing the need to list species under the federal Endangered Species Act. Yet, CPW currently does not have the authority to manage monarchs, other pollinators such as bees, or other invertebrate animals except mollusks and crustaceans. CPW also does not currently have the management authority to study and conserve native plants. This bill provides the ability for CPW to focus efforts on research, monitoring and conservation of invertebrates and rare plants. Specifically, the bill adds rare plants and invertebrates to the species that CPW may conserve, protect and perpetuate under the current "Nongame, Endangered, or Threatened Species Conservation Act", which is renamed the "Nongame, Endangered, or Threatened Wildlife and Rare Plant Conservation Act".

Why this bill is important

Invertebrates, including butterflies and bees, and native plants, are at the heart of a healthy environment. Most flowering plants require pollination (Ollerton et al. 2011), usually by insects, and those plants then produce many of the fruits, vegetables, nuts, and seeds that both humans and wildlife depend on. Moreover, insects and other invertebrates form an irreplaceable link in both aquatic and terrestrial food webs, with the vast majority of birds, bats and freshwater fish relying on invertebrates as food. Invertebrates also provide crucial ecosystem services; in addition to pollinating plants, they clean our streams and rivers by filtering water, help recycle plant, animal, and human waste, and regulate other species, including important agricultural pests. Losey and Vaughan (2006) found insects are worth more than $57 billion ($80 billion 2023 valuation) each year to the U.S. economy and are crucial for many of Colorado's most famous crops from Rocky Ford cantaloupes to Palisade peaches (Armstead et

al. 2023). This bill will add rare native plants and native invertebrates to the species that may be studied and conserved by CPW, allowing Colorado to both lead and engage in conservation efforts to protect and recover those plant and invertebrate species.

Monarch butterflies, pollinating insects, and other invertebrates are all in decline

Studies from around the world and in Colorado are showing that invertebrates are declining and this puts many ecosystems and agricultural systems at risk. The United Nations Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services found that more than 40% of invertebrate pollinator species globally may face extinction in the coming decades (IPBES 2016). Wagner et al. (2021) reported in the *Proceedings of the National Academy of Sciences* that, where studied, insect abundance is declining on average 1% to 2% per year. Here in Colorado, even within some of our most protected areas, insect biomass has declined by ~47% and abundance by ~61.5% over the last 35 years, primarily as a result of human environmental and climate change factors (Dalton et al. 2023). These declines are occurring across the western US as well as in Colorado. Monarch butterflies exemplify the importance of invertebrate conservation with both the migratory eastern and western populations occurring in Colorado, and the western population declining by over 90% across its entire range (Pelton et al. 2019). A study in the journal *Science* by scientists at the University of Nevada Reno found that butterfly populations in Colorado and across the West are declining at a rate of 1.6% each year, which means that ***butterfly abundance is declining by approximately 25% every 20 years*** (Forister et al. 2021). Native pollinating insects are particularly vulnerable, with a quarter of all North American bumble bees now considered Threatened on the IUCN Red List of Threatened Species (Cameron and Sadd 2020) and 37% of assessed bee species are at risk of extinction (NatureServe 2023). Colorado is home to 24 bumble bee species, more than a fifth of which have been petitioned or are under review by the United States Fish and Wildlife Service (USFWS) for listing under the Endangered Species Act (Armstead et al. 2023). The western bumble bee in particular, has declined by 57% from its known range in just the past two decades, driven primarily by increasing heat and drought across the west in combination with neonicotinoid pesticide use, with expected declines of up to 97% by 2050 (Janousek et al. 2023). Overall, this means fewer insects to pollinate plants, for birds and fish to eat, and for all of the other services that insects provide. Moreover, the true scope of declines for the vast majority of invertebrates is unknown, as they have not been studied, underscoring the need for investing in research and monitoring at the state level.

Rare plants are becoming even rarer with consequences for invertebrates and wildlife

Biodiversity loss is not limited to invertebrates. Plants are the foundation of terrestrial ecosystems, making up 80% of all terrestrial biomass (Bar-On et al. 2017), yet worldwide and in Colorado they are also in decline. A study in the journal *Science*, found that globally 36.5% of plant species are now exceedingly rare, driven primarily by human land-use and climate change (Enquist et al. 2019). In the US, a new report from NatureServe found that in addition to 40% of animals, 34% of plants and 41% of all ecosystems are at risk of range-wide collapse and extinction (NatureServe 2023). Currently, 16 rare plant species in Colorado are listed as either federally threatened or endangered under the Endangered Species Act, with several currently under review. Without management and conservation, many more rare plant species may require federal protections. Moreover, declines in plants are associated with concurrent declines in their pollinators (Biesmeijer et al. 2006), and likely have many unknown consequences for native ecosystems.

Proactive conservation can help these animals and plants and maintain the services they provide
If we hope to stem declines in insect and native plant diversity and safeguard the services that invertebrates and plants provide, governments must take steps to manage and conserve them. Protecting vulnerable species and restoring and enhancing habitat, especially for imperiled species, are proactive approaches that have been shown to recover populations of pollinators and other insects (Forister, Pelton & Black 2019). Providing CPW with the authority to study and conserve native rare plants, monarchs, other butterflies, bumble bees and other important invertebrates, as they do with mammals, birds, amphibians, and other wildlife, is the first step in ensuring that these critical foundations of our environment do not become endangered and that society can retain the vital services they provide. Many scientists stand ready to help the state if this bill passes.

Institutional affiliation is for identification purposes only and does not indicate institutional support.

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XERCES SOCIETY
for Invertebrate Conservation

Protecting the life that sustains us

April 3, 2024
Testimony statement in support of HB 24-1117: Invertebrates & Rare Plants
Colorado Senate Agriculture and Natural Resources Committee

Mr. Chair Roberts, members of the committee, thank you for the opportunity to speak with you today. My name is Steve Armstead, I'm a co-author of the Colorado Native Pollinating Insects Health Study and a Pollinator Conservation Specialist representing the Xerces Society for Invertebrate Conservation. The Xerces Society is a nonprofit organization focusing on conserving the invertebrates that are key to our health, productive agriculture, and to healthy ecosystems.

I am here to support this bill because the current code does not define invertebrates such as butterflies, wild bees, and other native pollinating insects as wildlife, as it does for mammals, birds, and other vertebrates. This means that CPW does not have management authority to research or take actions to help conserve insects, including those that we know are imperiled such as the monarch butterfly and several species of bumble bees – or even our striking state insect the Colorado hairstreak – which isn't imperiled but still requires conservation. All but nine states have this authority.

Allowing CPW to help the most vulnerable invertebrates would likely assist in the recovery of species and avert listings under the Endangered Species Act and corresponding federal prescriptions to prevent their extinction. With CPW having the ability to manage insects, the state is able to have a seat at the table with federal agencies. It's important to know that this Bill does not give CPW regulatory authority over insects, so there will not be new permitting requirements. This bill also isn't about pest species and their management. The Bill is focused on allowing CPW to proactively help at-risk species and avoid federal ESA listings.

The Colorado Native Pollinating Insects Health Study, published earlier this year, included an extensive assessment of the status of the native pollinating insects in Colorado and the actions that the state can take to protect and help the health of our Colorado pollinators. One clear priority recommended in the study was the importance of providing management and research authority to CPW for native insect pollinators and other invertebrates. This legislation represents one of the most important actions we as Coloradans can take to support the health of our pollinator populations.

Without making the changes proposed in the bill, monarchs and bumble bees will continue to be treated differently than any other imperiled animal in the state. We think these pollinators are wildlife, and are so amazingly important to us all, that they too should be managed and conserved. I hope you support this Bill.

Thank you to this committee for your work in supporting and stewarding the natural resources of this incredible state.

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