**Associate Editor: This is an interesting paper, but some revision is needed before further consideration. Although the revisions are mostly editorial, I agree with Reviewer #2 that the authors need to be more careful in both presenting their methods and in discussing the results relative to the study design and the fact that the authors cannot control many aspects of the arthropod communities in their system. The implications of this relative to interpreting the data from this study need to be explicitly and carefully discussed.**

**Reviewer #1: This is a well-written manuscript investigating the effect of invasive plant species on trophic interactions. The study is well described and presented, addressing a topic relevant to Biological Invasions readers. I just did not understand why the exclusion addresses only birds. Aren't there gleaning bats in your study region?**

We thank the reviewer for their positive opinion of the manuscript. The only gleaning, forest interior bat species in our study region is the northern long-eared bat (*Myotis septentrionalis*), which is a federally endangered species and increasingly rare in the northeastern U.S. Acoustic surveys of bats at our study site have not confirmed the presence of northern long-eared bats. In the event northern long-eared bats do in fact occur at the site, they would occur in such low abundance as to have a negligible effect on our results relative to birds. Big brown bats (*Eptesicus fuscus*), which are abundant in our region, also forage by gleaning, but much less commonly than foraging in flight over open areas. Foliage gleaning by big brown bats also usually occurs in open habitats and along edges much more so than in cluttered forest interior. Acoustic recordings in the areas of our study site where the experiment occurred have shown little to no big brown bat activity (C.L.S., unpublished data). For these reasons, we do not expect bats to have had an effect on our results.

**Bellow I provide some suggestions and comments:**

**In the first paragraph (introduction) I feel some abrupt changes of subject that could be avoided. Note that you change from biodiversity decline to economic loss and then to the challenge of managing invasive plants in just three sentences.**

The economic component was moved to the conclusion and these sentences rewritten for better clarity.

Line 45 now reads:

“Invasive species are widely considered to be a leading cause of global biodiversity decline (Bellard et al. 2016). Invasive species management totals $120 billion spent annually (Pimentel et al. 2007). Invasive plants are a particularly challenging category of invasives to manage in terrestrial ecosystems, with the cost of plant removal efforts still being difficult to estimate accurately for the U.S. or globally (Rai et al. 2022).”

**L68-69 - In "removal of particularly aggressive invasive plant species can drive recovery of arthropod assemblages", can you provide some explanation for the mechanism involved? Why should aggressive invasive plant species have negative effect on arthropods from the beginning?**

Added mechanism.

Line 64 now reads:

“Removal of invasive plant species can drive recovery of arthropod assemblages by allowing higher food-quality native plants to reestablish, facilitating an increase in insect prey abundance for songbirds (Gratton and Denno, 2005, Hopfensperger et al. 2017).”

**L85 - What do you mean by "behavior of arthropod communities"? Can you provide one example in the text?**

Mechanism added to clarify this example from the text.

Line 79 now reads:

“Furthermore, the atypical architecture of invasive plants modifies the foraging behavior of arthropod communities, changing encounter rates between predatory arthropods and prey (Pearson 2009, Lind and Parker 2010, Landsman et al. 2021).”

**L130-131 - Did you standardize the branch size? Can you provide some information on that?**

Paired branches within tree species were deliberately chosen to be of similar apparent leaf area. To ensure we did not bias treatments by leaf area, we completed a diagnostic analysis. We did not see any significant difference in leaf counts in paired branch treatments in these analyses. For brevity, and since these were just diagnostic tests, we did not include this in the manuscript.

Line 130 now reads:

“Each of these branches was paired with a nearby (< 10 m away) unmanipulated control branch of the same species and similar apparent leaf area.”

**L131-133 - I am not sure if the nearby branches are in the same tree or in nearby trees. Most likely nearby trees (because the branches are "< 10 m away" and in line 124 you mention 240 individual host plants), but it would be nice to state it clear.**

The majority of branches in each pair are on different trees, but in the case that trees with large lower canopies were available, we assembled a control and removal pair on the same tree. (Similar methodology to Singer et al. 2012 in *The American Naturalist* and Clark et al. 2016 in *Ecology*)

Line 132 now reads:

“When trees with larger understory canopies were variable, control and removal pairs were erected on the same tree (following methodology from Singer et al. 2012 and Clark et al. 2016).”

**L184 - My first understanding for "branch as a random effect" was that you were using the three sampling periods for each branch independently. But then, in line 188, you mention that the three samples were pooled together. From these my conclusion is that you are talking about the nearby branches. Please make sure to state it clearer. Maybe describe as "paired branches" or "branch pair" in the methods and use the term along the text.**

Branch # was used as a random effect because the biomass and abundance models had repeated measures (three samples of arthropods). In the later analyses, arthropods had to be pooled together to get enough biomass for nitrogen content. We removed the sentence about “avoiding psuedoreplication” because that was likely what was causing confusion.

Line 188 now reads:

“Nitrogen content models were fit with a normal distribution, but since all arthropod samples were pooled across sampling periods to gain enough biomass for the assay. In these analyses, host-plant species was used as a main effect (GLM).”

**L186 - Why did you use the invasive status instead of the plant species just in the abundance models?**

This was an accidental holdover from an older analysis. Apologies for the mistake. This line now reads:

“In abundance models, host-plant species with bird-exclusion treatment were fitted as fixed effects, and branch was included as a random effect.”

**L191-192 - Because you did not use the host-plant species as fixed factor in abundance models, the post-hoc tests should not apply to compare changes in abundance. Am I correct?**

The comment above addresses this mistake in the statistics methods. The text has been edited to the correct methods.

**L213 - Fig. 1D is inappropriately cited. Cite Figure S4 instead.**

Anyone

**Figure 1 and 2 - Most likely these figures are interchanged.**

Anyone

**L254 - Should mention Figure 3D instead of 3A.**

Anyone

**L295-296 - Your result does not "highlight that some invasive plants should be prioritized over others depending on the habitat in question". Such conclusion should emerge from observed differences between habitats.**

Updated text to be more specific to this study.

Line 295 now reads:

“While our study does not suggest invasive plants have no negative ecological consequences, it highlights that nearby native plants do not always yield significant differences in food availability to songbirds.”

**L309 - remove comma before "bird".**

Line 309 now reads:

“We found that common invasive plants in our study system are used as a foraging substrate by insectivorous songbirds just as intensively as natives.”

**L316-317 - This last sentence is not well connected to the paragraph.**

Change made. Line 317 now reads:

“These difference in architecture may explain why spider abundance was higher on low-lying Japanese barberry, matching other observations with invasive plants like Japanese stiltgrass (Landsman et al. 2020).”

**L333-338 - You well point that "the native plant community is a critical comparison point", but most likely the plant community in your study region has been already changed with reduced populations of at least two plant species known to provide high-quality food for forest insects. This certainly deserve further discussion. Should your results be different if you have a non-disturbed plant community as reference? You mention the deer over-browsing as a factor driving the decline of Prunus (cherries) and Quercus (oaks) populations. Can invasive species be a further driver?**

I gave my initial thoughts on this in my email. I think a key point to make is that the natives we studied are what would replace invasives following any major invasive plant removal effort by land managers. Well, invasives are more likely to fill that void, but among natives, it’s going to be the kinds of plants we studied, not oaks. So in most management scenarios around here, you have two alternatives – invasives or the natives we studied. That’s what we’re interested in comparing. Are the natives that would replace the invasives any better than the invasives themselves? That’s our question, not how invasives compare to totally undisturbed systems full of regenerating oaks.

[Agree. Please tackle this one for me!]

**L341-348 - Please note that your final conclusions are not supported by the study results. Which result suggests that the removal of invasive plants must be paired with restoration of higher-quality native plants? I agree that the body of knowledge accumulated after studies like yours will support more nuanced management strategies in the future. But this is different than saying that your results suggest a more nuanced management strategy.**

Hard to tell what they are saying, but I think we just need to rephrase this to better explain that invasive plant removal may be pointless if those invasives are only replaced with new invasives or with the natives we studied. You would only have a net benefit if the invasives could be replaced with natives of presumably higher quality than the natives we studied, like oaks.

[Agree as well.]

**Reviewer #2:**

**This study compares arthropods collected on native and non-native shrubs when birds are allowed access or are excluded. The premise is that although native plants in general produce more arthropod prey for birds than non-natives, all non-natives are not equally unproductive when compared to low value natives. I understand the hypothesis being tested here, but I have concerns about how the data were analyzed and interpreted. Simply put, when one compares the productivity of two groups of plants, one is comparing the herbivores, pollenivores, or nectivores produced by both groups. I fear the authors here have fallen into the trap of including non-target herbivores - - those generated by aquatic systems, by detritus from other plants, or simply incidental passersby, as well as the predators of those non-targets (primarily spiders) that are not directly produced by the plants in question in their data set. In my view, this makes accurately interpreting how the natives and non-natives studied here actually compare with each other impossible.**

We thank the reviewer for their constructive feedback. From this comment, it seems the objective of our study was slightly misunderstood and we have therefore revised the manuscript (provide lines) to make it clearer. Specifically, our goal was not to evaluate the quality of invasive plants as hosts and food sources for herbivorous insects. That is also an important topic that is in need of much more research, but our goal was to assess the amount of insect prey available to birds on invasive plants compared to natives. Birds prey on a wide variety of arthropods besides herbivores, and plants provide resources to arthropods other than leaves on which to feed. Plants provide shelter, hunting substrates for predators, (add others), and such resources are likely to vary among plant species based on their structure, shape, position in forest strata, microclimates they create, and so on. As such, it is likely that some plant species are of greater value than others to non-herbivores in addition to herbivores, and therefore better food sources for insectivorous birds. Because our goal was to understand how the total amount of arthropod prey available to birds compares between invasive and native plants, we included all arthropod taxa in our analyses, not only herbivores. And since birds are known to be capable of distinguishing plant species and show preferences for foraging on certain plants because of the full assortment of arthropod prey that can be found on them, the bird exclusion portion of our experiment was designed to allow the birds to tell us how they value the invasive vs. native plants. Our finding that the predation effect of birds on arthropod biomass was similar between natives and non-natives shows that birds recognize the non-natives as a quality food source and exploit them just as often as the native plants. The foraging behavior of the birds and the arthropod biomass and protein content data all point in the same direction and collectively indicate the invasive plants we studied are of no lesser value to birds as a source of arthropod prey than the native plants. We therefore respectfully and fully disagree with the reviewer that it is “impossible” to know from our study how the natives and non-natives compare to each other as food sources for insectivorous birds.

**Line 55: you say there is no consensus about whether removing invasives benefits wildlife, but in the next three paragraphs, you cite several studies that show the benefits are clear. I guess the word consensus bothers me here. There is no consensus in the true sense of the word on whether climate change is real or human caused; there are still a few lone voices claiming it is not. But the overwhelming bulk of the evidence says it is real. Is that the same case for removing invasives? I can site studies that have concluded non-natives are equally as productive as natives because they either made the non-target error discussed above or chose low value natives for their comparisons. No one has ever claimed that all native plant species are more productive than all non-native plants.**

[Maybe we revise to say removing invasives is not universally beneficial for wildlife? I think our point is it’s very case by case. Sometimes it can have benefits, but probably not always, and so all we are saying is land managers shouldn’t universally assume removing invasives is always worthwhile and effective.]

**Methods: How did you sample bagged branches? Did you remove the bag to use the beat sheet and then replace it? How did you select the plants for sampling? It is well known that plants in the sun host more insect herbivores than plants (or branches) in the shade. Was sun exposure controlled? Did the netting prevent arthropod access to the plant branches? Many moths have a wingspan much larger than the mesh of exclusion nets, so we need to know what the mesh size was in this study. Similarly, how did orthoptera (katydids) get into the bags? Also important is the question of plant biomass enclosed within the netting? For results to be meaningful, leaf biomass sampled has to be the same for all treatments, of arthropods sampled has to be expressed as a function of leaf biomass sampled. Finally, were the nets close enough to the leaves they enclosed that birds could actually forage on the leaves without actually entering the bags? Again, mesh size is important here.**

Rob [regarding birds accessing the branches through the mesh, I think we point out that the material we used is designed for and widely used in the agricultural industry to keep birds off fruit trees in orchards. Also, the netting is likely a visual deterrent to birds which have no reason to take a chance landing on a strange-looking bagged branch when there are so many other normal branches around it. Third, if birds were trying to forage through the netting, I think we would have found some birds tangled in it. Finally, for the reviewer’s comment as a whole, I think we reiterate in our response that this is a published technique and cite the Singer papers again.]

**I am trying to figure out why spider nitrogen content would differ on different plants if the species of spiders sampled were the same on each plant? Did spider community composition differ substantially among plant species?**

Rob [Did we key things out to a low enough level to know if spider composition was different? Regardless, it doesn’t seem odd to me that different plant species might have different species of spiders on them, even though I know next to nothing about spiders. I would think different spider species could have different preferences for plant size, branch structure, leaf area, etc., which would result in preferences in some plant species over others. In that case, they’d likely be preying on different species of herbivores, possibly resulting in different protein levels.]

**Line 281: Your language here is explicit: you are saying that you are examining the contribution of a plant to local biodiversity. That means you have to measure the biodiversity that plant produces: not the biodiversity produced elsewhere and just happens to sitting on the plant when you sample it or the biodiversity that is using that plant as a structure to hunt aerial insects. The only biodiversity a plant directly produces are members of the second trophic level: herbivores. Your study should be restricted to them.**

Rob [Reiterate response above about how plants could support arthropods in other ways besides being food for herbivores to eat. And maybe we just be careful about word choice so we’re not implying that the plants directly support all arthropods.]

**Line 285: No, you have not shown that invasives are producing equal amounts of resources for foraging predators.**

**Line 311: Why were you surprised to find similar foraging activity on natives and non-natives if the predators were foraging for aquatic insects and spiders not produced by those plants? Plants defenses have no impact on those arthropods. I could build a matrix of wooden scaffolding in the woods and collect the same number of resting arthropods on it that you did on the non-natives in your study, but I would be wrong to conclude that scaffolding is just as productive as native plants.**

**Line 314: You say "First, leaf tissue is of lower quality or more highly defended than on native plants, reducing biomass of arthropods on invasive plants." What lower quality leaf tissue really produces is fewer insect herbivores. Not aquatics and spiders.**

**Line 316: You say "Spider abundance was higher on low-lying Japanese barberry, similar to other observations with invasive plants like Japanese stiltgrass." Yes, but the prey those spiders are hunting are not produced by the plants in question. They are typically flying adults of detritivores (Tipulids etc), incidental aquatic adults like mayflies, dobsonflies, stoneflies, and caddisflies, as well as carrion flies, various beetles, etc. Again, you are implying that barberry and stiltgrass actually produce more prey than native plants. They do not.**

**To reiterate, web-building spiders should be considered separately since they are using plants (and the ceiling corners in my house) just as structural support for their nets. Their prey are flying insects that are not associated with the plants in question. I have the same concern about aquatic insects. They are simply using the plants as resting sites. Because they are not produced by plants, they do not belong in a comparison of the insect productivity of native vs non-native plants. Their load on a plant is much more a function of that plant's proximity to a wetland rather than its evolutionary origin. The only arthropods predicted to be affected by nativity of plants are insect herbivores. The data gathered here should be re-analyzed excluding web-building spiders (free hunting spiders can be included as an index of prey load) and aquatic insects that were not produced by the plants sampled.**