This manuscript "The Furvela tent-trap Mk 1.1 for the collection of outdoor biting mosquitoes" by Charlwood *et al.* describes the refinement of the Furvela trap for the collection of anthropophilic mosquitoes. To analyze the new configuration of the Furvela trap for endophagic biters, they compared twice-a-week usage of the tent to daily window-trap collections in Northern Tanzania, and for exophagic biters to outdoor light traps in the PAMVERC trial area in Mozambique. Overall, I believe the trap design to be a good one, especially due to the flexibility of the general design, cost, and due to the ubiquitous nature of CDC light traps. I do think the manuscript suffers from not including more from the large PAMVERC trial data as this has hundreds or thousands of trap nights, and from ambiguity in the methodology.

I fully agree with the premise that human landing catch is becoming unacceptable for use, and its use needs to be phased out. With this, I do feel that a more direct comparison between the Furvela design and HLC should be done. I do not believe this is necessary for publication, but I do think it is necessary to a widespread adoption of the technique.

I do recommend the paper for publication, though think a major revision of the text should be undertaken to improve clarity for the reader.

Basic Reporting:

The Furvela trap, while previously described, needs to have a basic description in the text to orient the reader to the design. This is especially pertinent as I can't locate the (what I presume) is the original description of the Furvela trap, as this reference (Charlwood JD: A new efficient and cheap trap for the collection of outdoor-biting mosquitoes. Acta Trop 2005, 95:S1–S506) seems to be to the entire supplementary info covering conference proceedings from the 4th MIM Pan-African Malaria Conference. The supplementary video and SOP do help this, but still I feel the paper would benefit from something brief in the text before the "improvements" part of "The Furvela tent-trap Mk 1.1" section.

Figures as included have the below issues:
- They may not be of sufficient resolution.
- Figure 1 Legend: I would highly recommend listing in the legend what each picture is showing. Defaulting to the text makes description unnecessarily taxing.
- Figure 2 Legend: "Tanzania" is misspelt.
- Figure 2: I don't see an arrow.
- Figure 2: Why is only the blue line labeled?
- Figure 2: The gaps in sampling would be better presented with a broken axis as you then lose information from the time periods you have sampling (i.e. reduce the "white space" in the figure).
- Figures 3 and 4: I'd highly recommend the use of bar graphs over pie charts. It would convey the data in a smaller and more informative package. Additionally, this allows for easier comparison between groups. Stacked barplots may make comparisons between before/after easier. See below figure (in attached pdf) for example (I will also attach the R code to generate this figure).

This presentation also allows you to more quickly look between species without having to go back to the figure legend to see what is what.
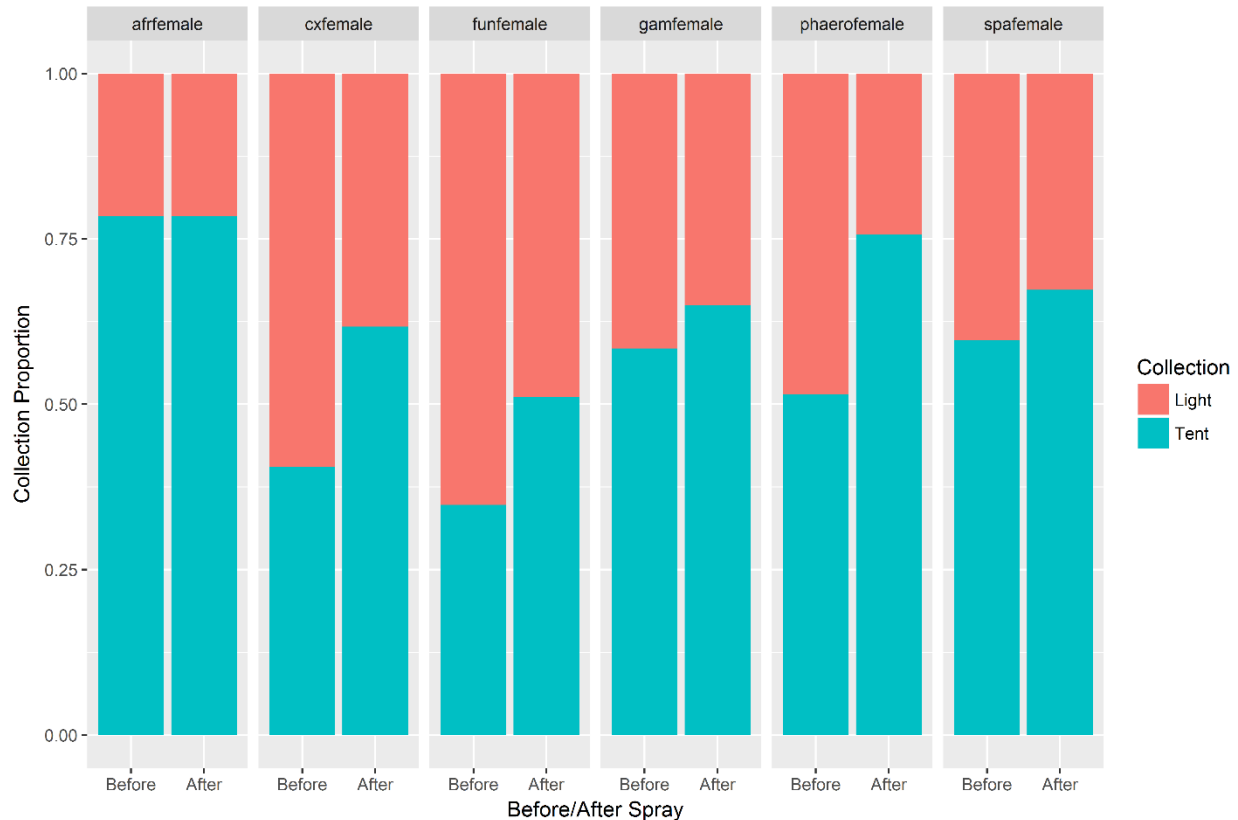
- Figures 3-4: Make sure that colors are consistent between graphs, i.e. Furvela is always blue.
- Figure 4 Legend: A numbered reference is cited, but the references aren't numbered.
- Table 2 uses "DRR" which is not defined. The text describes "IRR."

Other comments:
- Lines 206-207, Where is this time data? If in the supplemental I only see times "1, 2, 3". Was the night divided for collection period? This needs to be said explicitly how the night was split if so.
- Overall, the supplemental data could be cleaned up significantly. i.e. in the indoor_outdoor_furvela document, there are extraneous datasheets that aren't included in the paper, sheets are labelled poorly ("Sheet 1", "Sheet 2", "Collections", etc..), and some of them have no/poor labeling (no dates, shorthand for species). Fix sheet labels, remove datasets not utilized, and remove figures not used.
- The supplementary file names need to be explicit and the same as described in text, i.e. include "Supplementary File 1 – xxxxxxxx.xlsx".

Experimental Design:

The design is significantly muddled by the cobbling together of various studies using the Furvela trap, of which it is poorly described which tents are used (models, etc.), which "improvements" are included, and sampling locations/times/methods compared, etc. I think the authors would benefit from a descriptive table of what sampling was performed.

The methodology needs to be expanded, i.e. number of trap nights, be explicit about what data is re-used from studies published elsewhere, design of the study (i.e. are collectors being rotated through tents, etc.?).

Validity of the findings:

A central premise regarding the furvela trap's uniqueness is that an "entry" behavior is not required for collection. However, as mosquitoes are caught while attempting to enter the hole in the tent (while following the odor plume)---I feel this distinction is subtle from other "entrance" traps. The design is like that of the "infoscitex tent" design we described in Krajacich *et al.* as mosquitoes collected to odor plumes pushed out of mesh windows are instead collected by suction ports above the mesh (albeit in a simpler design with the Furvela trap).

Mosquitoes have been known to be very adept flyers, entering even small holes in a bed net. While the fan I can imagine makes entry difficult, as there is a large gap in the zipper- how often have collectors found mosquitoes in the tent? How often have you caught full or partially bloodfed mosquitoes in the furvela trap (indicating they were possibly caught while exiting after feeding), and does this proportion differ from that caught in the CDC Light traps?

General Comments:

Line 147: Need a comma after "light-traps"

Typo in line 151, "In Kagera Province, northern Tanzania." should not be a separate sentence.

Line 214: Remove comma after "In studies"

Lines 224-226: Is it true that only *An. funestus* and *Culex* spp. have changed indoor/outdoor ratios? It seems only *Mansonia africanus* is the same before/after spraying. The two mentioned are the only ones who went from dominant indoor to dominant outdoor, but most changed in proportion. The discussion should address whether any of the vectors (especially those such as *Coquelletida fuscopenata* that are less-commonly described) have been reported to be more commonly exophagic in other studies (from indoor/outdoor light traps or ideally HLC).

Line 249, need comma between "outdoors" and "suitable"

Line 254: "Window-traps may be a substitute for light-traps." What is this based on? They may be for indoor collections, but obviously not for outdoor collection.

Lines 279-280: Has this light repellence been seen with CDC light-traps with/without the bulb (but having a CO2 source) in this area? This finding is interesting as I am unaware of a documented repellence effect due to light for anthropophilic vectors, though I am aware of many cases of lights attracting vectors (i.e. sandflies) and other non-target dipteran (making sorting more difficult).

R code to generate the stacked bar plot:

```
library(ggplot2)
library(reshape2)
dat <- read.csv("C:/Acronis/Manuscript reviews/Charlwood et al/figure4.csv", check.names = FALSE)
#point to your file with just the catch number rows/column titles

dat = dat[,-2] #remove "average" column

dat$spray <- replace(dat$spray, dat$spray=="before", "Before") #fix labels
dat$spray <- replace(dat$spray, dat$spray=="after", "After") #fix labels
dat$spray <- factor(dat$spray, levels=c("Before", "After")) #format for the right order

datmelt <- melt(dat, c("spray", "Collection")) #reshape for ggplot2 plotting

ggplot(datmelt, aes(x=spray, y=value, fill=Collection)) +
 geom_bar(stat='identity', position='fill') +
 facet_grid(~variable) + labs(x='Before/After IRS', y='Collection Proportion') #plot graph

ggsave("furvela.tiff", dpi=600, compression="lzw") #save graph w/ high dpi and compression
```