

Reproducibility Review of: "A Method for Spatializing Disturbance by Detecting Human-Wildlife Encounters from GNSS Trajectories"



Reproduction Metadata

Submission Title: A New Spatio-Temporal Method for Detecting Human-Wildlife Encounters from GNSS Trajectories

Post Review Title: A Method for Spatializing Disturbance by Detecting Human-Wildlife Encounters from GNSS Trajectories

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Review Repository: <https://github.com/reproducible-agile/reviews-2026/tree/main/reports/008>

Summary

The reproduction was mostly successful by following the repository README and adapting the workflow to the available environment, using PostgreSQL 15 instead of 16. Several issues prevented a fully seamless rerun: one invalid geometry in france.csv blocked database import, the `create_filtered_hda_table` function failed because of a timestamp/date-style mismatch, the DEM file used in the analysis was not included and had to be requested from the authors, and the Figure 8 script

contained an SQL error that required a manual fix. After applying these corrections and removing the dependence on the failed france import all figures and tables were reproduced. However, there were some discrepancies.

Some reported outputs could not be matched exactly: Table 2 was not reproduced, Table 3 showed slight differences in the spatial granularity of "Survey Project," Table 5 had small value discrepancies, and the Fall value in Table 8 differed by one. The main challenges for future reproduction are incomplete provision of required data files, fragile database import and timestamp handling, and script-level errors in the published code that require manual debugging before results can be regenerated reliably.

Reproducibility Reviewer Notes

Followed Readme.md file of manuscript repository.

- Used PostgreSQL 15 instead of 16 (because it was already installed)
- Link to data files in methodology section of anonymous manuscript
- The france.csv file contains an invalid geometry and cannot be imported into the database
- Due to an improper datestyle the "create_filltered_hda_table"-function fails to execute

```
Traceback (most recent call last):
File
"/Users/fwelsch/Storage/Workspace/Publications/2026_AGILE_Reproducibil
ity_Review/Sub8_DetectingHumanWildlifeEncounter/paper_repository/1_mai
n_Create_Encounter_Events.py", line 50, in <module>
my_utils.encounter_events(
File
"/Users/fwelsch/Storage/Workspace/Publications/2026_AGILE_Reproducibil
ity_Review/Sub8_DetectingHumanWildlifeEncounter/paper_repository/my_ut
ils.py", line 115, in encounter_events
tracks, tracks_simp_new_filter, id_traj = create_filltered_hda_table(
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
File
"/Users/fwelsch/Storage/Workspace/Publications/2026_AGILE_Reproducibil
ity_Review/Sub8_DetectingHumanWildlifeEncounter/paper_repository/my_ut
ils.py", line 1095, in create_filltered_hda_table
curs.executemany("""
psycopg2.errors.DatetimeFieldOverflow: date/time field value out of
range: "23/05/2017 06:10:00"
LINE 20: '23/05/2017 06:10:00',
^
HINT: Perhaps you need a different "datestyle" setting.
```

Fixed through adjusting the timestamps:

```
from datetime import datetime
```

```
def _to_time(v):
    if v is None:
        return None
    if hasattr(v, "time"):
        return v.time()
    return datetime.strptime(v, "%d/%m/%Y %H:%M:%S").time()

d = list(zip(
    tracks_simp.getAnalyticalFeature('id_point')[0:-1],
    [_to_time(v) for v in tracks_simp.getTimestamps_str()[0:-1]],
    tracks_simp.getAnalyticalFeature('geom')[0:-1],
    tracks_simp.getAnalyticalFeature('id_sub_traj')[0:-1],
    id_traj[0:-1],
    tracks_simp.getAnalyticalFeature('date_2')[0:-1],

    tracks_simp.getAnalyticalFeature('id_point')[1:],
    [_to_time(v) for v in tracks_simp.getTimestamps_str()[1:]],
    tracks_simp.getAnalyticalFeature('geom')[1:],
    tracks_simp.getAnalyticalFeature('id_sub_traj')[1:],
    id_traj[1:],

    tracks_simp.getAnalyticalFeature('grid_x')[0:-1],
    tracks_simp.getAnalyticalFeature('grid_y')[0:-1],
    tracks_simp.getAnalyticalFeature('grid_x')[1:],
    tracks_simp.getAnalyticalFeature('grid_y')[1:]
))
```

- Requested the used dem.tif-file from the author, as it was not provided
- Due to the failed import of france in the db-table, I had to remove the following lines of code from the figure 8 generation script. Then the figure was reproducible.

```
france = """
select * from france
"""

france = gpd.GeoDataFrame.from_postgis(france, con)

# Plot the GeoDataFrame
france.plot(ax=ax_inset, edgecolor='black', facecolor='lightblue')

france = france.to_crs(2154)
france.plot(ax=ax_inset, color='lightblue', edgecolor='black', alpha = 0.5)
```

- The script for figure 8 had an error in the SQL-Query (even in the latest script version) that was solved by adjusting the final lines of the query in the "query_ppa_indiv"-function in the "my_utils_plotting"-script

```

""" + vis__ + """
    ) as q
    group by q.traj_human, q.indiv_animal"""

```

- Couldn't reproduce Table 2, output of the script was different

```

• ((venv) ) fwelsch@Franzs-MacBook-Pro-2 Sub8_DetectingHumanWildlifeEncounter % python paper_repository/Tables/Table_2_chamois_data.py
(4, 3)
no_of_traj      category spatial_granularity
0      121      >=144 points (~10min)      1/29
3     4035     72-143 points (~10-20min)     1/51
2     2603     48-71 points (~20-30min)     1/110
1     12414    24-47 points (~30-60min)     1/72

```

Note: Table 2 in the original submission showed the values before outlier filtering and the values shown here are after outlier filtering. The authors updated the table to the one with the outlier filtered values.

- Spatial Granularity of "Survey Project" in Table 3 slightly differed

```

• ((venv) ) fwelsch@Franzs-MacBook-Pro-2 Sub8_DetectingHumanWildlifeEncounter % python paper_repository/Tables/Table_3_human_data.py
(6, 4)
source  count temp_gran spac_gran
0  camptocamp    10    1/60    1/39
1    Rando      6    1/13    1/8
2    Strava   2282    1/1    1/3
3    Survey   281    1/4    1/3
4    Visu    211    1/3    1/5
5    vttour    44    1/5    1/11

```

- Values in Table 5 minimally differed from the ones reported in the manuscript

```

• ((venv) ) fwelsch@Franzs-MacBook-Pro-2 Sub8_DetectingHumanWildlifeEncounter % python paper_repository/Tables/Table_5_HDA_radius_and_Intervisibility.py
(3, 7)
order_  n_ee  order_  n_ec  ec_d_t  eca_a_area  eca_h_area
0      1  663357  1    63263  0 days 00:12:02.256912  12079.314829  6413.274160
1      2 1735922  2   108958 0 days 00:17:46.611199  11403.795839  9089.434249
2      3 1592065  3   74978 0 days 00:21:21.033623  13017.650823  10165.449322

```

- Fall value in Table 8 differs by 1

```

• ((venv) ) fwelsch@Franzs-MacBook-Pro-2 Sub8_DetectingHumanWildlifeEncounter % python paper_repository/Tables/Table_8_trajectories_seasons.py
(4, 3)
season  no_traj_human  no_traj_chamois
0  Spring         647           4351
1  Summer        1042          4641
2    Fall         597          6345
3  Winter         551          3836

```

Citing this document

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