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Dear Editors of the Journal of Statistical Software,

we are writing to submit a manuscript of our article entitled ***singleRcapture**: An R Package for Single-Source Capture-Recapture Models* for review to the Journal of Statistical Software.

Population size estimation is a major challenge in official statistics, social sciences, and natural sciences. The problem can be tackled by applying capture-recapture methods, which vary depending on the number of sources used, particularly on whether a single or multiple sources are involved. This paper focuses on the first group of methods and introduces the `singleRcapture` package in the R language (version 0.2.1.3 the same as on CRAN).

Our package serves to bridge a significant gap, as the SSCR methods are either not available at all or are only partially implemented in existing R packages. It offers state-of-the-art single-source capture-recapture (SSCR) models (e.g. zero-truncated one-inflated regression) together with new developments proposed by the authors, and provides a user-friendly application programming interface (API).

Our contribution can be summarised as follows:
- The package implements and extends existing SSCR methods together with new developments proposed by the authors.
- The package can be used to produce point estimates and calculate their variances; it also implements several bootstrap variance estimators.
- It implements diagnostics (e.g. rootograms) to assess quality and conduct sensitivity analysis (e.g. dfbetas).
- The package relies on the `S3Methods`, which can be easily applied by users who know how to run regression in R (e.g. `stats::glm`, `countreg`).
- The package enables flexible estimation of population size for user-specified strata and is fully integrated with the `sandwich` package.
- The `singleRcapture` package can be used to implement custom function families, which is an option advanced users will find particularly useful.
- In addition, we provide integration with the `countreg` and `VGAM` packages via the lightweight `singleRcaptureExtra` package (available through Github).

The `singleRcapture` package has been created for users interested in estimating the size of populations, particularly those that are difficult to reach or measure, for which information is available only from one source and dual/multiple system estimation is not applicable. The package has been developed since 2021 and the full history can be found at the Github repository `https://github.com/ncn-foreigners/singleRcapture`.

To the best of our knowledge, there is no open-source software that can be used to estimate population size with SSCR methods and includes variance estimators or diagnostics. That is why we believe that the paper will be of interest to the readership of the Journal of Statistical Software.

Thank you for your consideration of this manuscript.

Sincerely,
Maciej Beręsewicz (& Piotr Chlebicki)