**Dataset accompanying publication: “Inter-Group Social Behavior, Contact Patterns and Risk for Pathogen Transmission in Cape Buffalo Populations”**

This dataset supports the publication “Inter-Group Social Behavior, Contact Patterns and Risk for Pathogen Transmission in Cape Buffalo Populations”. The dataset contains 5 data files and can be used to reproduce analyses reported in the publication. The dataset consists of data derived from GPS locations recorded every hour from female Cape buffalo in 2 southern African populations (Kruger National Park: KNP and Okavango Delta: OD). We monitored collared buffalo in the former study site in 2010–2015 and the latter in 2007–2010. The data files can be opened using R after they have been downloaded. The following files have been archived:

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| **File name** | **File description** |
| HRO and distance between HRs (.txt) | This file contains the home range overlap and the minimum distance between home ranges (HRs) in km of 4 Cape buffalo groups in Kruger National Park (KNP), and 6 Cape buffalo groups in Okavango Delta (OD), distributed in 6 and 7 dyads of neighboring groups, respectively. The other variables indicate the year, season (dry vs. rainy season) and group membership of the 2 individuals of a given dyad (*GR1* and *GR2*). Home range overlap between individuals was estimated using the Bhattacharyya’s affinity index, see publication for details. |
| Contact rate (.txt) | This file gives the contact rate (i.e., the number of contact/month) between 4 Cape buffalo groups in Kruger National Park (KNP), and 6 Cape buffalo groups in Okavango Delta (OD), distributed in 6 and 7 dyads of neighboring groups, respectively, for 4 types of contact. Contacts were defined using spatial (*SPATIAL\_WINDOW*) and temporal (*TIME\_WINDOW*) windows as following: 1) direct contacts (spatial window = 150 m, time window = 0 hr), 2) short-term indirect contacts (150 m, 2 days), 3) long-term indirect contacts (150 m, 31 days), and 4) vector-borne contacts (2500 m, 31 days). Contact rates are given per year and season (dry vs. rainy season). Indirect contact can occur in two directions because individual A can come before individual B, thus potentially leading to pathogen transmission from A to B; or individual B comes before individual A, thus potentially leading to pathogen transmission from B to A. Therefore, two variables indicate, for each dyad, the direction of contact, with *IDANI* the individual passing after *IDANI\_BEFORE*, i.e., *IDANI* is in contact with *IDANI\_BEFORE*. |
| Contact duration (.txt) | This file contains the contact duration in hours between 4 Cape buffalo groups in Kruger National Park (KNP), and 6 Cape buffalo groups in Okavango Delta (OD), distributed in 6 and 7 dyads of neighboring groups, respectively, for 4 types of contact. The variables *SPATIAL\_WINDOW* and *TIME\_WINDOW* indicate the windows used for defining contacts; *IDANI* and *IDANI\_BEFORE* give the direction of contact (see above or main text for details); and *START\_DATE* and *END\_DATE* give the start and the end of the contact. Contact duration is given per year and season (dry vs. rainy season). |
| Dist locs to water (.txt) | This file contains the distance to water at the hourly buffalo dry season locations. Distance to water is in kilometres. Other variables indicate study site, year and buffalo ID (*IDANI*). |
| Habitat and water of contacts (.txt) | This file contains the distance to water and the vegetation type at the interpolated buffalo locations (i.e., every 5 mins), depending on whether the 2 individuals in the dyad are in contact or not. The presence or absence of contact is indicated in the variable *CONTACT*, i.e., whether the individual location was a contact [scored 1] or not [scored 0] with the other individual of the dyad. Distance to water is in kilometres. In *VEG\_TYPE* values, 1 corresponds to grasslands, 2 corresponds to bushlands and 3 corresponds to woodlands. Other variables indicate study site, year, season (note that distance to water was only calculated during the dry season), dyads, the direction of contact, and the spatial and temporal window used for defining contacts (see above for more details). |

**Publication**: Wielgus, E., Caron, A., Bennitt, E., de Garine-Wichatitsky, M., Cain, B., Fritz, H., Miguel, E., Cornélis, D. and Chamaillé-Jammes, S. 2021. Inter-group Social Behavior, Contact Patterns and Risk for Pathogen Transmission in Cape Buffalo Populations. *Journal of Wildlife Management*, in press.

The raw data (i.e., GPS locations) from OD are openly available on Movebank (study name: Cape buffalo movements in the Okavango Delta, Botswana) at the following link: <https://www.movebank.org/cms/webapp?gwt_fragment=page=studies,path=study404717594>

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