Please contact Kezia Manlove (kezia.manlove@gmail.com) for additional information and questions about data use. Data were primarily collected by Kezia Manlove and E. Frances Cassirer. Michael Lerch, Johanna Ohm, Logan Weyand, K.C. Hill, Carrie Lowe, and Nick Fortin assisted with data collection. Funding was provided by a grant for Federal Aid to Wildlife Restoration, Shikar-Safari International, the Washington and Oregon Chapters of the Wild Sheep Foundation, and the Idaho Wildlife Disease Research Oversight Committee. We are especially grateful to Bob Dice and Paul Wik of WDFW for their on-going support of the Hells Canyon bighorn monitoring effort. Funding was provided by Morris Animal Foundation grant D13ZO-081 and Montana University System Research Initiative: 51040-MUSRI2015-03. KRM was supported through a Penn State academic computing fellowship. RKP was supported by National Institutes of Health IDeA Program grants P20GM103474 and P30GM110732, and P. Thye. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

For additional information and analyses, please see

Manlove K.R., Cassirer E. F., Plowright R.K., Cross P.C. & Hudson P.J. (2017). “Contact and contagion: Bighorn sheep demographic states vary in probability of transmission given contact”. *Journal of Animal Ecology*.

### Field name: descriptions of field contents

eweids.full : Unique identifiers for recognizable bighorn sheep ewes.

lamb.out: indicator for lamb survival (1 = survived to weaning; 0 = died prior to weaning)

year.full: study-year (note that ewes can contribute one lamb per study-year)

pop.full: character string indicating population of residence. Aso = Asotin Creek; BB = Black Butte; MV = Mountain View

PopEst: estimated population size in this study year (constant for all lambs born in the same population-year)

TotEwes: estimated total number of non-yearling ewes present in this population-year

TotYrs: estimates total number of yearlings present in this population-year

PosYrs: total number of PCR-positive yearlings present in this population-year

PosEwes: total number of PCR-positive ewes present in this population-year

maternal.titer.full: percent antibody inhibition against Mycoplasma ovipneumoniae for this ewe on her most recent sampling event.

Maternal.pcr.full: binary variable for whether this ewe tested PCR-positive for Mycoplasma ovipneumoniae in her most recent sampling event.

EweAge: factor indicating dams as 2-year-olds, 3-year-olds, or older (“ad”)

YrExp.full: Summed associated between this ewes and all yearlings (infected or not)

DryExp.full: Summed associations between the ewe indicated in eweid.full and all dry ewes (infected or not)

WetExp.full: Summed associations between the ewe indicated in eweid.full and all wet ewes (infected or not)

SummedAssoc: Summed associations between the ewe indicated in eweid.full and all other animals in the study

interWeightedYr: Summed associations between this ewes and all yearlings (infected or not), weighted by the estimated yearling-lamb interaction rate

interWeightedDry: Summed associations between this ewes and all dry ewes (infected or not), weighted by the estimated dry ewe-lamb interaction rate

interWeightedWet: Summed associations between this ewes and all other wet ewes (infected or not), weighted by the estimated wet ewe-lamb interaction rate

interWeightedYrDry: Summed associations between this ewes and all yearlings or dry ewes (infected or not), weighted by the estimated interaction rate between yearlings and dry-ewes and lambs, respectively

interWeightedSummed: Summed associations between this ewes and all other study animals (infected or not), weighted by the estimated interaction rate between each class of study animals and lambs

pcrWeightYrExp.full: Summed associations between this ewes and all yearlings that tested PCR-positive for Mycoplasma ovipneumoniae on their last handling event

pcrWeightDryExp.full: Summed associations between this ewes and all dry ewes that tested PCR-positive for Mycoplasma ovipneumoniae on their last handling event

pcrWeightWetExp.full: Summed associations between this ewes and all wet ewes that tested PCR-positive for Mycoplasma ovipneumoniae on their last handling event

SummedLoad: Summed associations between this ewes and all study animals that tested PCR-positive for Mycoplasma ovipneumoniae on their last handling event

 pcrWeightDryYrExp.full: Summed associations between this ewes and all dry ewes or yearlings that tested PCR-positive for Mycoplasma ovipneumoniae on their last handling event

interWeightedPCRYr: Summed associations between this ewes and all infected yearlings, weighted by the estimated yearling-lamb interaction rate

interWeightedPCRDry: Summed associations between this ewes and all infected dry-ewes, weighted by the estimated dry ewe-lamb interaction rate

interWeightedPCRWet: Summed associations between this ewes and all infected wet-ewes, weighted by the estimated wet ewe-lamb interaction rate

interWeightedPCRDryYr: Summed associations between this ewes and all infected dry-ewes or yearlings, weighted by the estimated dry ewe-lamb or yearling-lamb interaction rate, respectively

pcrWeightWetExp.ind: Binary indicatory for whether a lamb had any association or no association with wet ewes that tested PCR-positive for Mycoplasma ovipneumoniae on their most recent testing event

pcrWeightDryYrExp.ind: Binary indicatory for whether a lamb had any association or no association with dry ewes and yearlings that tested PCR-positive for Mycoplasma ovipneumoniae on their most recent testing event