PDX Wildlife – Basic Requirements

- **Inputs**
  - **Use cases** for which data will be collected. Below are a few of the use cases that were discussed with Meghan during an initial scoping call.
    - Lab Test Data Collection
    - Cage Changes
    - Breeding Events
    - Behavioral Data
  - **Specific data** that should be collected for each use case, including required (yes/no)
    - Lab Tests – ID, Date, Time, Lab Name, Lab Value, Interpretation, etc.
    - Cage Housing – ID, Date, Time, Cage ~~#, Cage Location~~ID, Facility, etc.
    - Reproductive Events – Animal 1 ID, Animal 2 ID, Date, Time, Facility, Outcome (intromission (pregnancy), non-pregnancy, pseudopregancy/other), litter size, abandoned
    - Year, Date, Start Time (hh:mm:ss), Animal ID1, Animal ID2 (possibly none or NA w/ electroejaculation but would be semen ID if AI), Procedure (Natural Mating, Artificial Insemination, Electroejaculation), Num._people_present, Breeding Location (Inside/outside), Pen_ID, Home_pen_of_M/F, Video Taken (Y/N), Separated due to aggression (Y/N), Intromission_Success (Y/N), Intromission_Start_Time (hh:mm:ss), Intromission_End_Time (hh:mm:ss), End Time (hh:mm:ss), Pregnancy (Y/N), Pseudopregnancy (Y/N), rest could be obtained from the studbook info (even the pregnancy but not Pseudopregnancy).
    - Behavioral Data – Animal ID, Date, Time, Facility, Behavior, etc., linked to Enviro Data, Observer ID, 1 hour Observation Period, sometimes multiple obs for same animal, Different Types of Observations (maternal, peeking, etc.)
    - Observer ID, Behavioral Observation Type (Breeding, Male-Male Competition, Stereotype, Personality, Maternal Care), Trail Type (Premate Uncategorized, Pre-move control, Female inside control, Post-move control, Pre-move experimental, Male-male competition experimental, Post-move experimental) Date, Weather condition (cloudy, partly cloudy, partly sunny, sunny, rain, snow), Air Quality Code (from iphone),Temp Phone F°,Temp Thermometer C°, Humidity, Start Time, End time, Focal Pen ID, Focal Animal ID, Neighbor1 Pen ID, Animal ID1, Neighbor2 Pen ID, Animal ID2, Link to iPad Animal Behavior app observation collection (the 1 hr focal animal observation), Notes
      - Breeding: Manager Survey/Keeper survey of pairs overall behaviors toward eachother. We have this sheet in paper form.
    - Environmental Data – Temperature, Humidity – general for the base
    - Location Data – Doesn't change but has variability~~, non-breeding cages with enrichment (yes/no), cage size, Facility~~¶
    - Picture, Sq..Meters, Climbing.trees (Y/N), Grade (Y/N), ManmadeStructures (Y/N), Percentage.of.Pen.Public.Interaction, Open.to.public (Y/N), Number.of.total.possible.neighbors.within.housing.complex, Number.of.

direct.neighbors (0-2), Possible.physical.contact.between.neighbors (Y/N), Method.of.physical.contact(wire.mesh/cage.bars/combination), Number.of.mesh.barriers.bar.areas.allowing.for.physical.contact, Sq.Meters.total.available.for.physical.contact, Percent.area.of.entire.enclosure.available.for.contact, Physical.communication.rating (1-10), Visual.communication.possible.with.neighbors (Y/N), Visual.communication.rating (1-10), Vocal.communication.possible.with.neighbors (Y/N), Vocal.communication.rating (1-10), Chemcial.communication.possible.between.neighbors. (Y/N), Chemical.communication.rating (1-10), Hammock (Y/N), Pen Overall Score (1-10).

- Studbook Information – ~~wildborn vs captive born, F1, F2, genetic, animal info~~Obtained from studbook/birth records. Won't change but has variability
- Picture, StudbookID, CommonName, Chinese Characters, Sex (M/F), DamCommonName, DamStudbookID, Paternity confirmed (Y/N), Generation (F1/F2/F3, etc), SireCommonName, SireStudbookID, PotentialSire 1 StudbooID, PotentialSire 2 StudbooID, PotentialSire 3 StudbooID, PotentialSire 4 StudbooID. Provenance (Wild/Captive), Capture_Date (only pops up if wild), Birth_Location (Bifengxia/Yaan, Wolong, Gengda, Dujiangyan, Chongqing, Beijing, San Diego Zoo, NZP-Washington, . . . any of the studbook locations), DOBirth, Mother Reared (Y/N), Insemination Type (AI/NM), DODeath, Identifying Characteristics AgeDeath(years) Survivorship 1 year (Y/N), Survivorship 2 years (Y/N), Survivorship 3 years (Y/N) Survivorship Adult (Y/N) Breeding Recruitment (Y/N) Date at First Breeding Recruitment Estimated Breeding Date? (Y/N) Age at first Breeding Recruitment Natural Reproductive Success (Y/N) Date at First Natural Reproductive Birth Age at First Natural Reproductive Birth Parity (Y/N) Date at First Parity Age at first Parity

- **Collection method** for each use case
  - Lab Tests – standardized form? Manual input via mobile app?
  - Cage Changes – standardized form? Manual input via mobile app?
  - Breeding Events – standardized form? Manual input via mobile app?
  - Behavioral Data – standardized form? Manual input via mobile app?
  - Historical Data – standardized form
  - Studbook Data Entry – standardized form

- **Outputs**
  - **Database queries**
    - Reports made from collected data, for downstream analysis
    - Simple graphs made from collected data

- **Security/Interface**
  - **Login/authentication**
    - Inputs
    - Outputs

- **Secure server (Production)**
  - PDX Wildlife will need a *secure server* set up for their Production data.
  - PDX Wildlife will need to clarify any encryption/security requirements for data stored in Production environment. Different vendors/agencies may have different requirements – i.e., special password or access requirements, 128-bit encryption, proprietary portals, etc.
  - Duplicate data? Is this often an issue? How is it identified?
  - How many different types of users?
  - Researchers (includes interns), staff (keepers, managers)