

African Wild Dog Husbandry

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Zoo

Workshop Outline

- African Wild Dog Natural History
- Part I: General Husbandry
 - Veterinary Care
 - Reproduction and Neonate Care
 - Behavior Management
- Part II: Pack Management
 - Structure
 - Introductions
 - Aggression Management
 - Multi-generation/geriatric packs
- Examples and Discussion

Natural History



Natural Pack Structure

- Groups from 2 individuals to 20
- Led by an alpha pair
- Only alpha pair will breed and the entire pack will assist in raising the young
- Usually male offspring will stay with the pack and female offspring will disperse

Natural Diet

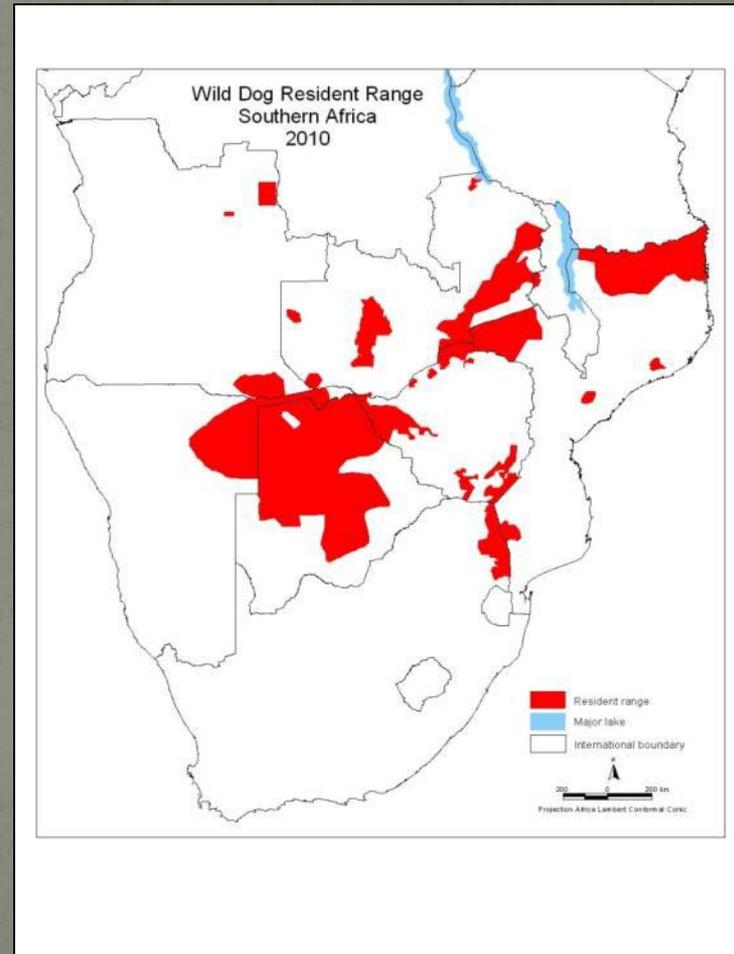
- Work in packs with cooperative hunting behavior
- Involves an intense chase
- Pack members begin eating prey before it stops moving
- Generally disembowels prey will still chasing it
- Anything from small antelope to a buffalo size
- Size of prey depends on number of animals hunting
- Regurgitation for younger and geriatric animals

Reproduction

- Generally only Alpha pair breeds
- On rare occasions, the beta female will be seen breeding with the male
- Den in the ground
- Entire pack helps raise pups

Distribution

- Sub-Saharan Africa



Current Plight

- 3,000 to 5,500 left in the wild (IUCN)
- Decreasing population trend
- Pocketed populations
- Threats:
 - Poached by hunters
 - Domestic dog diseases such as distemper and rabies
 - Habitat loss/fragmentation

Conservation Initiatives/Status

- Vaccination (Woodroffe)
- Rehabilitation and relocation (Rasmussen)
- Population Monitoring (Denver Zoo)
- Education
 - Village fencing
 - Farmer education
 - Veterinary care

Captive Populations & Wild Implications

- “Early attempts to reintroduce captive-bred animals to the wild were hampered by the dogs' poor hunting skills and naive attitudes to larger predators. However, recent reintroductions have **overcome this problem by mixing captive-bred dogs with wild-caught animals and releasing them together**. This approach has been very valuable in re-establishing packs in several fenced reserves in South Africa, but is not considered a priority in other parts of Africa at present. Nevertheless, captive populations have important roles to play in developing conservation strategies for wild populations, through research (e.g., testing of vaccination protocols), outreach and education.”

Current AZA Demographics / SSP Status

- SSP designation: **Yellow**
- 175 dogs in the SSP population @ 37 institutions
- SSP Recommendations:
 - 13 breeding groups
 - 16 tranfers

Part I: General Husbandry



AZA Large Canid Husbandry Manual

- Most information here is taken from current draft
- Available from aza.org
- Institutional Representative should be able to access it

Environment/Housing

- Temperature guidelines
- Space Requirements
- Safety/Containment

Temperature Guidelines

- “Should have access to heat in climates that continuously get below 40 degrees”
- Simple heated hut would suffice
- Two Examples:
 - Denver locks in under 32
 - Binder Park never locks in dogs but has heated huts that remain very warm (around 70 degrees)
- Dogs are intelligent enough to stay inside
- Ever seen a dog pile?

Dog Pile

- Three pups!



Space Requirements

- Same sex group of 2 animals or Non-reproductive Pair
 - 5,000 sq ft exhibit (1,000 sq ft for each additional animal)
 - 2 holding shift pens (200 sq ft each)
- Single generation breeding enclosure
 - 10,000 sq ft primary
 - 3 holding shift pens (200 sq ft each)
- Multi-generation breeding enclosure
 - 10,000 sq ft primary
 - 5,000 sq ft secondary
 - 3 holding pens (200 sq ft)

Space Requirement

- Visual and physical “furniture” to allow dogs to get away from each other
- Social relationships change
 - Some dogs might want to become alpha, etc.
- Provide enough individual spaces so animals can all be separated if necessary

Design Elements

- Various substrates
 - Dogs will dig dens
- Tree, shrubs, grass to elicit natural behaviors
- Places that provide visual barriers from people and other animals
- Should avoid corners in design
 - Dominate animals will trap subordinates
 - Escape opportunities without a roof
- Make it keeper friendly too!

Safety/Containment

- Double door features
- Dig barriers
- Barriers
 - Dry Moats
 - Chain-link/ Woven Mesh
 - Solid walls
 - Glass
- Keeper's job is to ensure integrity of these barriers. Check to see what they are supposed to look like if you have questions.

Zoo Diet

- Meat
 - Many commercial choices
 - Nebraska, Milliken, Natural Balance, etc.
 - Institutional preference
- Carcass
 - Great for diet but also enrichment
 - Consult with vet staff before feeding this
 - Horse bones
 - Rats
 - Rabbits
 - Guinea pigs
 - Chicks

Vet Care

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SIZES ARE APPROXIMATE

Quarantine

- Follow the protocol at your institution

Routine Sampling

- Weights
 - Can be accomplished through training
 - A simple “target” or “station” behavior can station a dog on numerous scales
 - Denver Zoo’s “bench” behavior
- Blood Draws
 - Also done through training
 - More later
- Fecal output
 - Diseases can be detected by fecal consistency changes

Immobilizations

Manual:

- Open area/exhibit vs. closed/small space
- Equipment
- Capture stress/overheating

Chemical:

- Hand injection, dart/pole, oral drugs
- AZA Canid SSP Vet Advisor , Michael Briggs
mbriggs@apcro.org
- AZA Large Canid Animal Care Manual

Immobilizations

General Considerations & Anticipatory Planning:

- Time of day
- Types of drugs
- Type of procedure
- Individual animal and pack dynamics
- Re-integrating plan...tactics & recommendations
- Injury/illness isolation plan...tactics and recommendations

Vaccinations

AWD safety and efficacy

- Distemper, Parvo, Rabies
- Leptospirosis

Pup vs. adult vaccination

Institutional preventative medicine programs & environmental disease prevalence

Growths

- Many wild dogs are being reported with growths on their skin
- Current studies are examining the threat of these and if they are related to contraception in females
- Report these growths to the vet staff and possibly contact the SSP vet representative

Diabetes

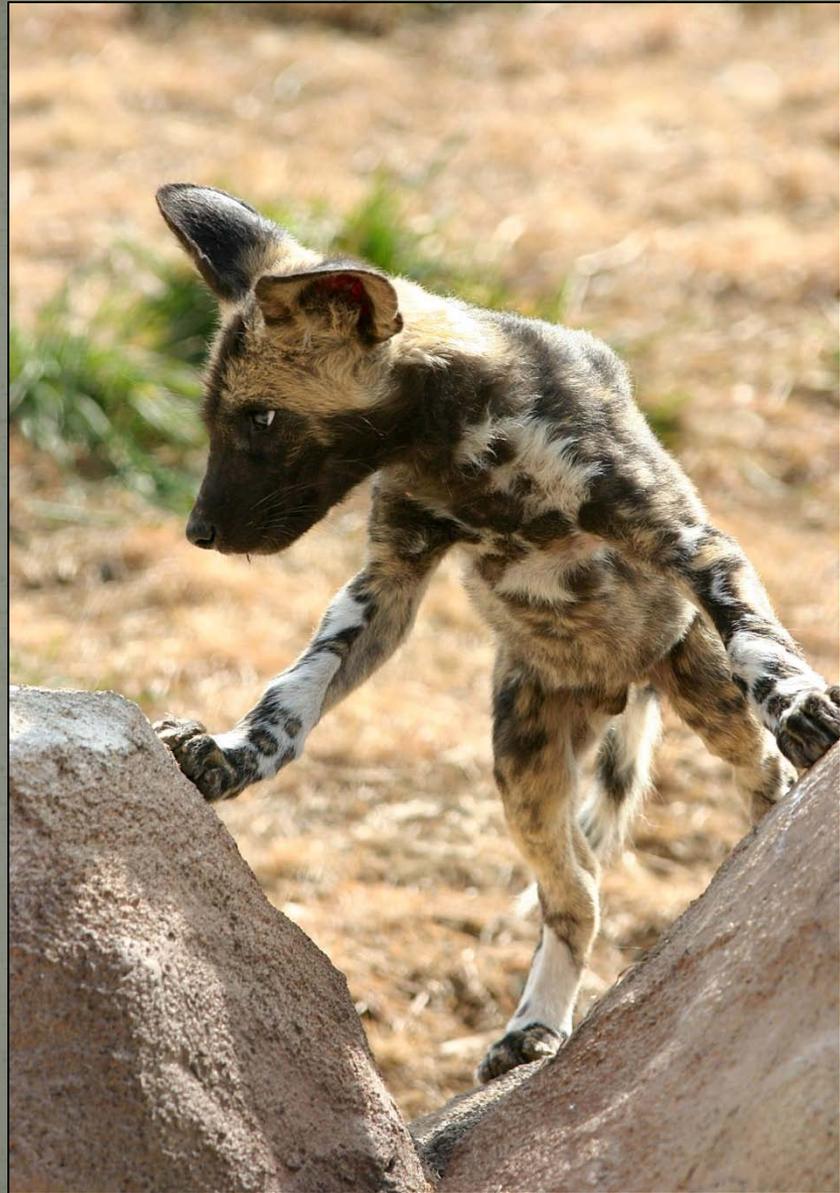
- Male at Denver Zoo noted to have diabetes
- We kept him alive for two months with twice daily injections of insulin...
- More on that later

Reproduction and Neonate Care



Parent Reared

- Denver Zoo



Denver Zoo

- 1.0 Judd and 0.1 Daisy were the two parents
- Produced a total of 28 pups
- 2002 – 7 pups
- 2003 – 14 pups
- 2004 – 7 pups
- Judd and Daisy (and siblings when available) raised all of the pups

Judd and Daisy

- Import from South Africa
- At the age of 1 when they first produced
- Judd was a smaller male – around 60 pounds average weight
- Daisy is an average female – around 55 pounds average

2002 Litter

- 7 pups
- Daisy's first litter
- No formal operant conditioning program in place
- No keepers in dog holding for two weeks after birth except to feed dogs twice a day
- Daisy was nervous
- Seen carrying puppies in and out of the den box a few times
- Increased diet might have caused bloody diarrhea which was solved with medications

2003 Litter

- 14 puppies
- Daisy had begun a formalized training program between years one and two
- Dog holding resumed normal activity 2 days after pups were born
- Daisy was not nervous and kept her training routine with keepers
- Desensitizing Daisy to various activities during her pregnancy calmed her down when the puppies were around

2004 Litter

- 7 pups
- In new exhibit (Predator Ridge)
- Followed similar guidelines to pregnancy of 2003
- Maintained solid training program that allowed normal shifting and routines in building

Denver Zoo Pregnancy Guidelines

- Before Birth
 - Watch for breeding activity and signs of the breeding female's pregnancy. Pregnancy is usually obvious by ~40 days after confirmed breeding. Establish potential due dates (70 day gestation).
 - Increase female's diet by ~1 ½ # canine meat and 1 cup dog food during last month of pregnancy in 2-3 separate increments. Feed this diet out two times per day to help satisfy female's appetite.
 - Place the whelping box in the whelping stall ~two weeks before due date.
 - Once the pregnant female's vulva shows signs of swelling, separate female overnight in the whelping stall. After determining that labor is not imminent, the female may rejoin the pack during the day. Begin recording the whelping box activity nightly.

Denver Zoo Pregnancy Guidelines

- Whelping Box Dimensions

- The wooden whelping box/den is simple in construction. It is 37 ½" tall x 32" wide x 49 ½" long. The entire top opens up on hinges. To one side of the den lid is a hole covered with a small wooden box attached to the den to protect the camera equipment.
- The door entry is 26" tall x 14" wide with a lip ~4" tall to keep pups in the box until they are fully mobile.
- The crate contains two compartments with a doorway separating each (30" tall X 18" wide). Typically, whelping occurs in the compartment farthest from the exit door.
- The den floor is a heavy plastic. A wooden door slides over the entry door so that keepers can lock the female and pups inside the box for stall servicing.
- Wood shavings used for bedding. Easy to clean and no impaction.

Denver Zoo Pregnancy Guidelines

- After Birth

- Day 1- female is fed only once during the day to keep activity to a minimum. No stall cleaning. No unnecessary activities in the service area, or adjoining office. Dog pack is fed outside. Begin to monitor female's hunger level daily and increase diet accordingly. A maximum of 5# canine meat has been used with our breeding female. Female should not be back at her normal diet level until after 4-5 months due to regurgitation. The number of puppies and the number of pack members who are helping with the feeding of the puppies determines the female's proper diet.
- Day 2- Trainers resume feeding dog pack inside assuming female is doing well with puppies. Stall is dry cleaned. Female remains howdied with pack all day.
- Week 1- All training, feeding and normal cleaning activities resume for all pack members except the female. All activities back to normal in service area and adjoining office. (As long as female continues to do well with puppies).

Denver Zoo Pregnancy Guidelines

- After Birth (cont.)
 - Week 2-3- Female is desensitized to being fed in separate stall away from pups. Entire pack slowly introduced to female and puppies and allowed to spend several hours with her inside.
 - Week 3-4-female separated from pups completely every day for cleaning, feeding and training.
 - 1 month- trainers begin supplementally hand feeding puppies. May start to see pack members regurgitating for puppies. Increase individual adult dogs by $\sim 1/2\#$ to $1\#$ each. The amount may depend on how much each dog is regurgitating and how much they weigh.
 - 2 months-Puppies on exhibit with entire pack.
 - 8 months-begin operant conditioning training with puppies. Puppies at full adult diet.

Hand/assist reared

- Binder Park Zoo
- Pittsburgh Zoo

Behavior Management



Enrichment

- Species appropriate behaviors
- S.P.I.D.E.R. model
 - Set Goals
 - Planning
 - Implementing
 - Documenting
 - Evaluating
 - Re-adjusting

Denver Zoo Wild Dog Enrichment Lists

- Fresh or dried herbs
- Pine cones
- Spices
- Extracts
- Essential Oils
- Cereal
- Hay, straw, dirt, mulch
- Kong toys, durable dog toys
- Grasses: rye, oat, wheat
- Natural wooden objects and logs
- Large Wooden Spools
- Keepers playing with items outside of stalls
- Bamboo
- Bones: Knuckles, horse tails, femurs
- Whole prey/meat Ice treats
- Rawhides/ pigs ears
- Whole Fruit/Vegetables
- Non toxic paints
- Jell-o
- Blood trails
- Paper mache
- Items from other species' enclosures
- Items from other species
- Hides
- Piles of ice or snow
- Grapevine balls and wreaths
- Eggs
- Ropes
- New substrates
- Phone books
- Exhibit pool
- Radio
- Coconuts
- Mirror
- Bubbles
- Perfumes/colognes
- Gourds
- Misters
- Tires
- Pasta
- Toilet Paper
- Treat Log
- Antlers Sounds- Nature and Animal Calls
- Bird Feeders
- Boomer balls, boxes, rings
- Buckets
- Burlap Bags
- Baby Food
- Chalk
- Christmas Tree
- Evaporated Milk
- Feeder Fish
- Fire hose animals/balls
- Fire hose hammock
- Frozen Fish
- Grain Bags
- Cardboard Boxes
- Cardboard Rolls
- Bowling Ball
- Keeper Boots
- Plastic barrels
- Popcorn
- Scratching post
- Wind chimes- natural wood
- Zupreem canned feline diet
- Bread
- Basketballs
- Honey

Lure Course

- System of a motor and pulleys used for greyhounds and cheetahs previously
- Transplanted this idea for wild dogs
- Binder Park Zoo
- 0.3 Dogs
- Created to establish natural hunting behavior
- Motor was behind the fence
- Dogs rewarded at end of chase

Lure Course



Lure Course



Lure Course



Training



Training

- Husbandry focused behaviors
- Operant conditioning with positive reinforcement
- Karen Pryor's *Don't Shoot the Dog*

Denver Zoo Training Repertoire

- Target
- Dig
- Down
- Focus
- Jump up
- Open
- Roll
- Shake
- Side
- Sit
- Speak
- Spin
- Stand
- Bench
- Hit
- Around
- Bow
- Touch

Focus Behavior

- Starts the training session clearly
- Helps overcome separation and anxiety
- Animals don't solicit attention like some other carnivores
- Food motivated...not people motivated
- Food is the strongest reinforcer

Focus Behavior

- **BEHAVIOR:** Animal stands on all four legs and focuses on trainer
- **VERBAL S/D:** *none*
- **VISUAL S/D:** Keeper stands and waits for animal.
- **CRITERIA:** Animal stands on all 4 legs while waiting patiently for trainer to give a s/d.

Focus Behavior



Stand Behavior

- **BEHAVIOR:** Animal stands up on hind legs, front paws on mesh
- **VERBAL S/D:** *“Stand”*
- **VISUAL S/D:** Right hand only. Hand makes a fist. Hold fist at dog’s head level near mesh.
- **CRITERIA:** Front paws are on either side of their head. No bending of paws, paw pads are visible. Tactile allowed.
- **DEVICES USED:**
 - For paws = swabs, ointment, and water from spray bottle
 - For belly = inspection with flashlight, water from spray bottle

Stand Behavior



Side Behavior

- Injections and Blood Draw
- Most important husbandry behavior
- Most difficult to train

Side Behavior

- **BEHAVIOR:** Animal lines up along the mesh and presses their hip against the mesh
- **VERBAL S/D:** *“Side”*
- **VISUAL S/D:** Using the palm of your hand, hold hand, palm side, toward mesh, with fingers pointing to the right or left, (depending on which side of animal you want exposed) and move hand in the direction you want the animal to line up. (ex: Use right hand and move to the right for the right side of the animal)
- **CRITERIA:** Animal stops at the trainer’s hand while exposing their right (or left) side to the trainer and hip is pressed against the mesh. Tactile allowed, for example, injection in hip area.
- **DEVICES USED:** Needles and needle caps, syringes, butterfly needles, flashlight, stethoscope, spray bottle, etc.

Side behavior



Blood Draw

- Judd Video

“Side” Training Plan

- Approximations
- Log prop placed perpendicular to mesh
- 1) Animal lured with MB between log and mesh
- 2) Begin giving verbal and visual S/D. Phase out meat ball
- 3) Phase out bench
- 4) Work on proper placement of animal and duration
- 5) Introduce 2nd person for work on desensitization to tactile
- 6) Desensitize to tactile tools.
- 7) Pass off to another trainer

Example Training Log

	Date	Trainer	Loc
OKA	7/29/2012	HG	red c
	Rating	2nd	Tact.
Target	3	x	
Down			
Stand			
Sit			
Side	3	x	x
Open			
Bench			
Speak			
Shake	3	x	
Bow	1	x	
Focus	1	x	
Jump Up			
Dig	3	x	
Roll			
Hit			
Comments	very motivated. Jordan was 2nd. Oka pressed both times asked. She laid down on her bows. And focus was not in line with me, mostly sideways		

Training Case Study: 1.0 Judd



Activity: Create a Training Plan

- Split up in to groups of 4
- Establish firm criteria for end behavior
- Establish clear verbal and visual cues
- Create approximations to the end goal
- Establish a time frame for each approximation step
- Establish time frame when the behavior will be completed
- Share the plan with everyone

Part II: Pack Management



Pack Structures

- Pairs
- All female
- All male
- Multi-male/multi-female

Introductions

- Base on natural history
- Constant quest for dominance and food
- Remember the possible natural combinations

Activity: Create Introduction Action Plan

- Split in to four groups
- Action plan the following scenarios OR one of your own that you want to work through
- 1) Two brothers (age 2) are to be introduced to 1 (age 8) female
- 2) Four un-related females (ages 2, 4, 5, 8) are to be introduced
- 3) Two brothers (age 2) are introduced to another pair of brothers (age 6)
- 4) After intense fighting between 1.3 (alpha pair – age 7- and two offspring- age 5) and multiple wounds ALL dogs are now housed separate. The healing is over....

Aggression Management

- Base on natural history
- Binder Park's 3.3 story
- Binder Park's 3.1 story
- Denver's Kim-ly

Binder Park's 3.3 Story

- 3.0 brothers already lived at Binder Park
- 0.3 were acquired from Denver's 14 pup litter
- It was a goal to see if all 6 could live together despite natural history
- Ended up with three pairs
- Took 0.3 to foreign place...instant pack
- Once 0.3 were out of the exhibit, 3.0 instantly joined up again

Binder Park's 3.1 Story

- Three brothers
- One older female

0.1 Kim-ly Case Study

- Alpha
- Aggression w/ sexual maturity
- Consider natural history

Multi-Generation Packs/Geriatrics

- Base on Natural History
- Alpha pair usually with offspring of male gender

Geriatrics

- Facility requirement
 - One level
 - Bedding
- Food intake
- Weight management
- Injection training
- Supportive care
- Pack dynamics

Discussion

- Who would like to action-plan a current wild dog challenge?

Contact Information

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