Capture and Processing Birds



General Outline

- Capture Techniques
- Processing of birds
 - Banding
 - Aging, Sexing
 - Measurements
 - Fat, Muscle scoring
 - Moult
 - Blood collection

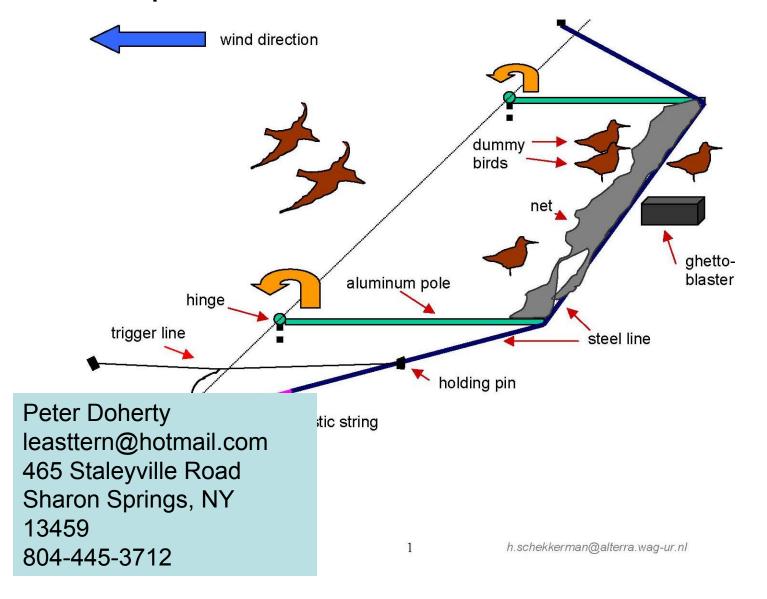
Capture Techniques

- Relies on knowing where birds will be in space and time
- Requires creativity and patience
- Requires you talk with many people and learn from their mistakes and efforts

Cannon Net



Clap net





Double clap-nets used in late summer, with decoys

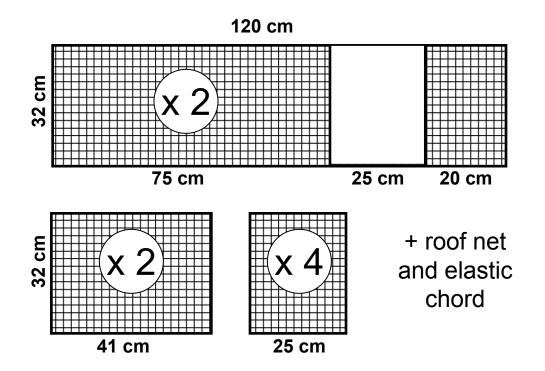


Closing net, pulled by the catcher in the background

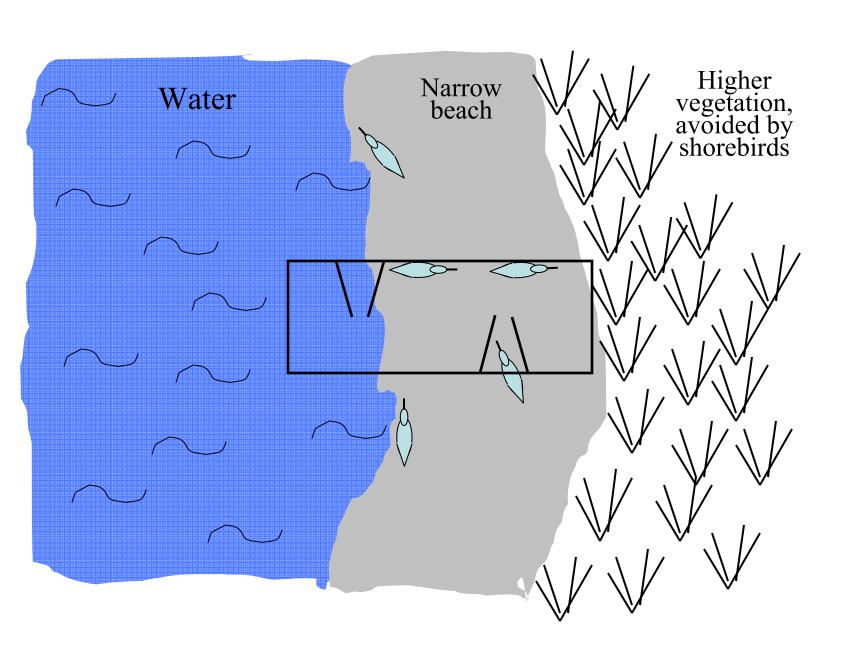


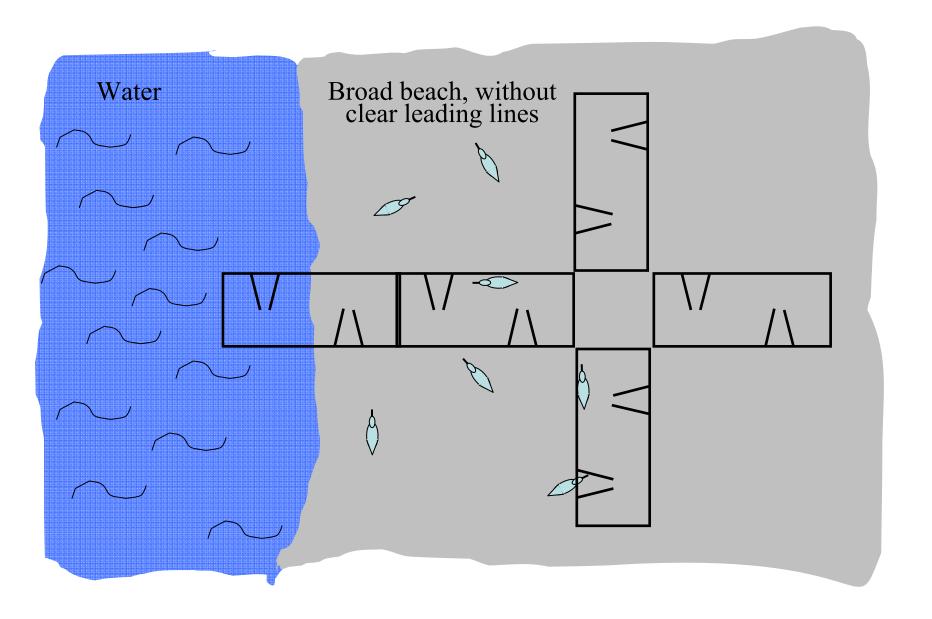


Ottenby walk-in trap



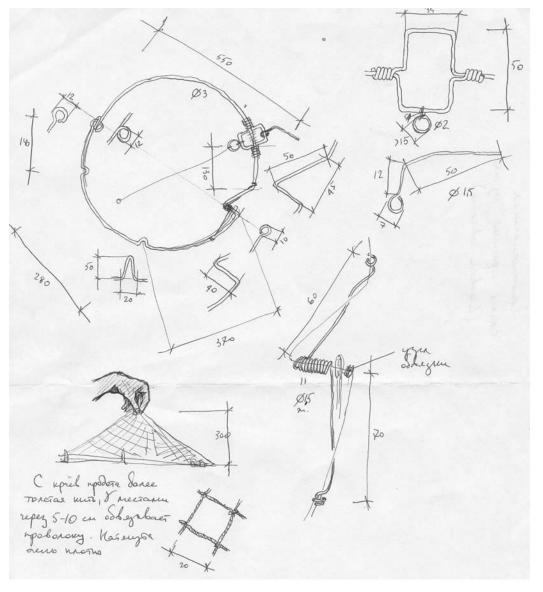
Lindström, Å., Klaassen, M. & Lanctot, R. 2005. The foldable "Ottenby" walk-in trap: a handy and efficient wader trap for expedition conditions. *Wader Study Group Bull.* 107: 50–53.



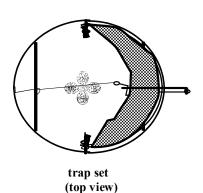


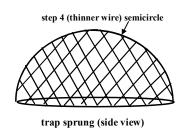


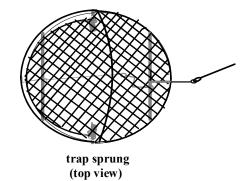
Bow Net for capturing nesting birds



Setting a bownet





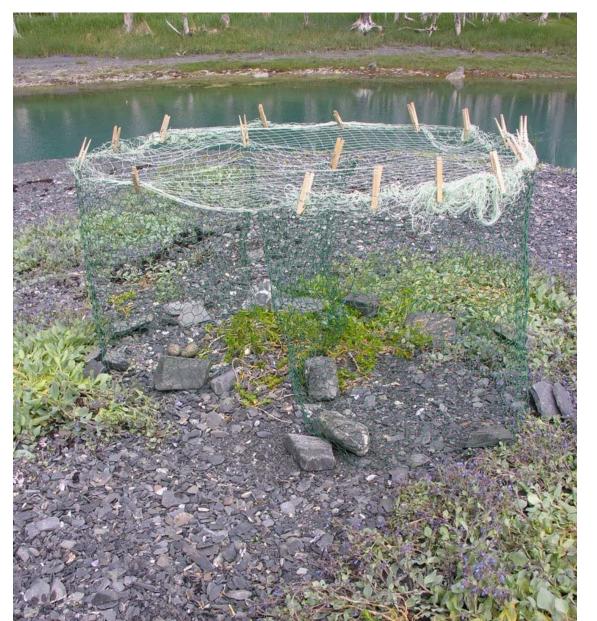








Nest walk-in trap





Mist Nets





Horizontal mist nets



Drive Trapping



Night-lighting



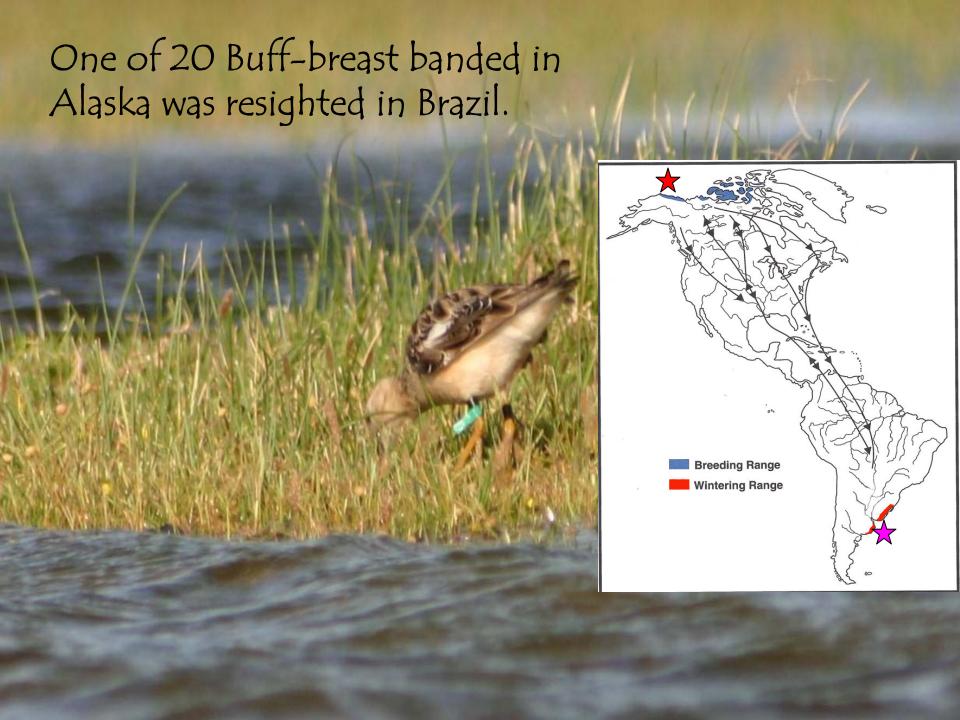


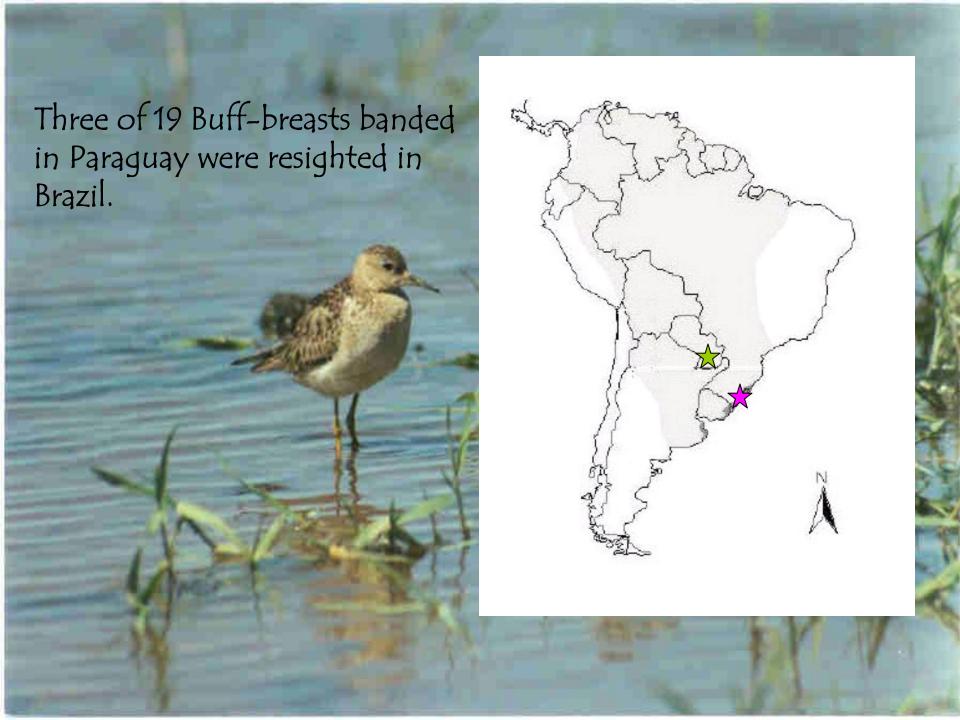
Drop traps



Banding of Animals

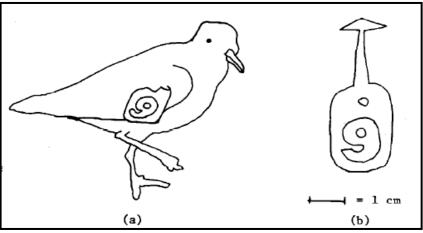
- Factors to consider?
 - Why are you banding the birds? What are your objectives? Are they realistic?
 - Can you capture enough birds to meet your objectives?
 - Survival estimates require fairly large number of birds and at least three years of resight data
 - Some exceptions where banding data gives new insight that was not available before – migration patterns





Extrinsic markers: color bands, leg flags, patagial markers

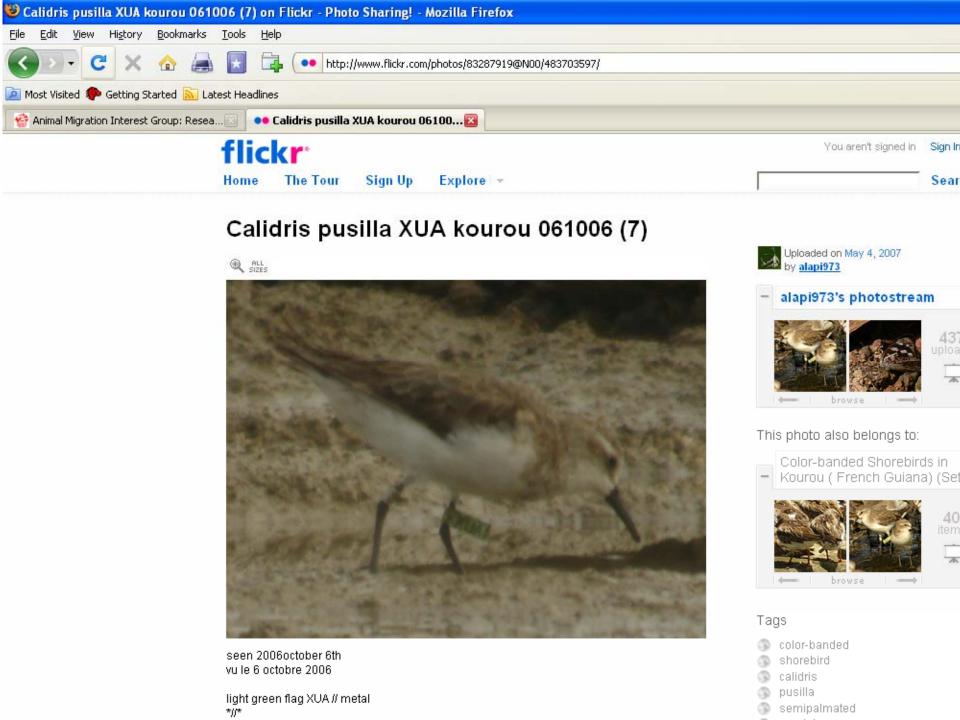




Resighting rates tend to be low for shorebirds, better for hunted species.

If see a banded bird, contact U.S. Geological Surveys Patuxent Wildlife Research Center's Bird Banding Lab

http://www.pwrc.usgs.gov/bbl/



Banding of Animals

- Factors to consider?
 - Why are you banding the birds? What are your objectives? Are they realistic?
 - Obtaining a permit and metal bands
 - Difficult in some Latin American countries
 - Can work through North American master banding permit holder to acquire USGS metal bands OR
 - Order metal bands from private company
 - Learn the rules for your country

Banding of Animals

- Factors to consider?
 - Why are you banding the birds? What are your objectives? Are they realistic?
 - Obtaining a permit and metal bands
 - Coordination of banding with other people working with the same species.
 - Especially important for long-lived species that leave your study area
 - Are there national or international programs in place that you need to follow?



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Migratory Bird Populations Division - Bird Banding Office

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Pan American Shorebird Program



Photo: C.L. Gratto-Trevor Canadian Wildlife Service

Since few species of shorebirds are hunted in North America, the traditional method of marking birds with motal log bands was not an

PASP Home



- How to report a colour banded shorebird sighting
- 2. If you colour band shorebirds
- 3. What is a flag?
- 4. How to make a flag
- 5. Where to obtain flag blanks
- 6. More about banding shorebirds

Colour Flag Combinations for Migration Research on Shorebirds in the East Asian - Australasian Flyway

24/06/2007 KEY: Provisional/Available Discentinued

Master	Lower	White	Black	Blue	Green	Orange	Yellow	
Upper								
White	White		White	White	White	White	White	Yel
	no flag		Black	Blue	Green	Orange	Yellow	Dark
	North Island	Delay Use	8hanghai	Taipei	South Island		Hong Kong	
	NEW ZEALAND		CHINA	CHINA	NEW ZEALAND	KOREA	CHINA	
Black	1 3	Black		Black	Black	Black		Dark
	_	White		Blue	Green	Orange		Yel
		Shanghai CHINA	Delay Use	S Philippines PHILIPPINES	Inner Gulf THAILAND	Java INDONESIA	Malaysia	,
Di		No.			î	TEXAL CONTRACT		
Blue	Blue	Blue	(Blue	Blue	Blue		Pa
	no flag	White	Halman Organist	Blue	Green	Orange	Vellari Bires Delte	
	Northern Japan JAPAN	Central Japan JAPAN	Hainan-Guangxi China	Northern Japan JAPAN	MONGOLIA	Southern Japan JAPAN	Yellow River Delta China	Wran R
Green	Green	Green	Green			Green		Pa
	no flag	White	Black			Orange		n
	QLD	Singapore		Jiangsu	Delay Use	N Yellow Sea	Gulf of Carp.	N C
	AUSTRALIA	SINGAPORE	CAMBODIA	China		CHINA	Australia	R
Orange	Orange	Orange /	Orange	Orange	Orange		Orange	Pa
	no flag	White	Black	Blue	Green		Yellow	n
	Victoria	Discontinued	Sumatra	Tasmania	NSW	Delay Use	SA	sc
	AUSTRALIA	Korea	INDONESIA	AUSTRALIA	AUSTRALIA		AUSTRALIA	R
Yellow	Yellow	Yellow	Yellow		Yellow	Yellow		
	no flag	White	Black		Green	Orange		
	NWA	Sakhalin Island	Kamchatka	Darwin region		SW WA	Delay Use	

Prepared by: Doug Watkins, Wetlands International - Oceania doug.watkins@wetlands-oceania.org

Find more information on the Protocol at: http://www.tasweb.com.au/awsg/

Solder bands





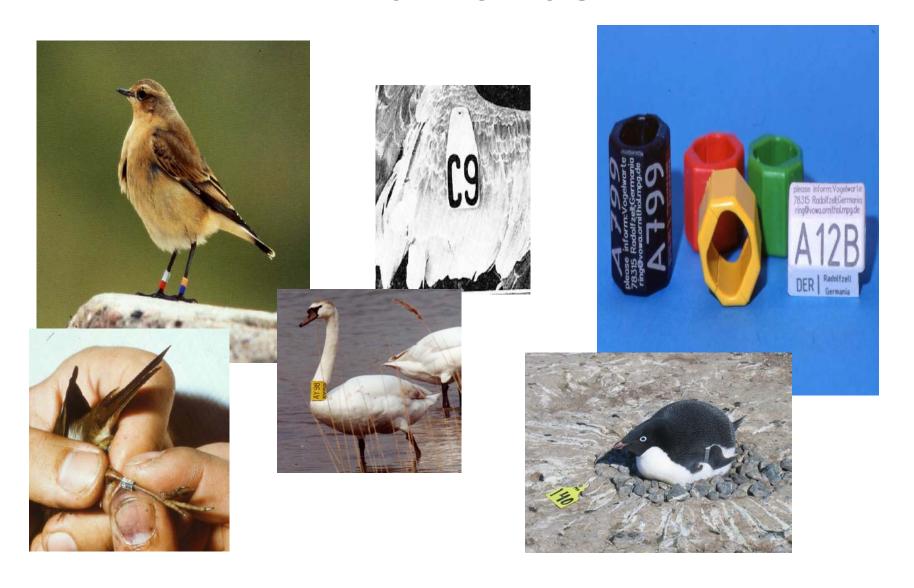




Banding of Animals

- Factors to consider?
 - Why are you banding the birds? What are your objectives? Are they realistic?
 - Obtaining a permit and metal bands
 - Coordination of banding with other people working with the same species.
 - What type of bands/markers to use?
 - Do you need to actually mark the bird?
 - Do you need to individually identify each bird?

Bird Bands







Unique engraved flag identifies bird



CHART 1: CONFUSING or REVERSIBLE LETTERS and NUMBERS.

Usab le	Usab le	Delete letter	Reason	
A	1	В	resembles usable number	8
С	2	D	D resembles usable number	
Е	3	G	resembles usable letter	С
F	4	I	resembles usable number	1
Н	5	L	resembles inverted usable number	7
J	6	О	resembles usable number	0
K	7	Q	resembles usable number	0
X		X, H and N	Caution reversible if used with 1,6,9,0	
Total = 15	Total = 10	Total = 11	Suggestion: do not use E / F or M / N in the same series or code year	

Clark, et al. 2005. Wader Study Group Bull. 108: 38-41.

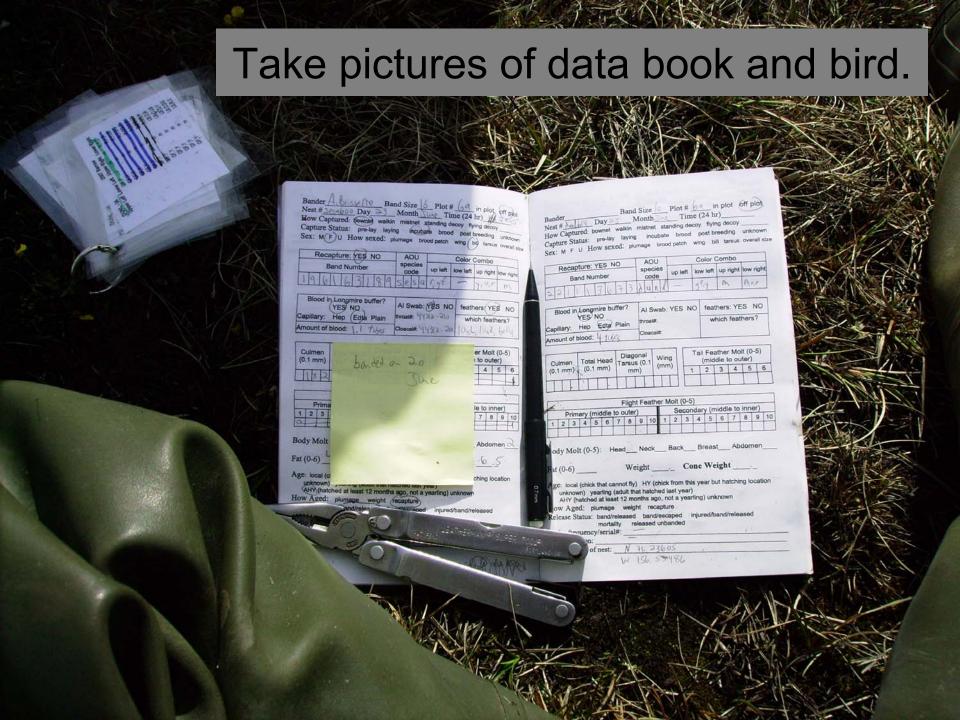
Cohort banding





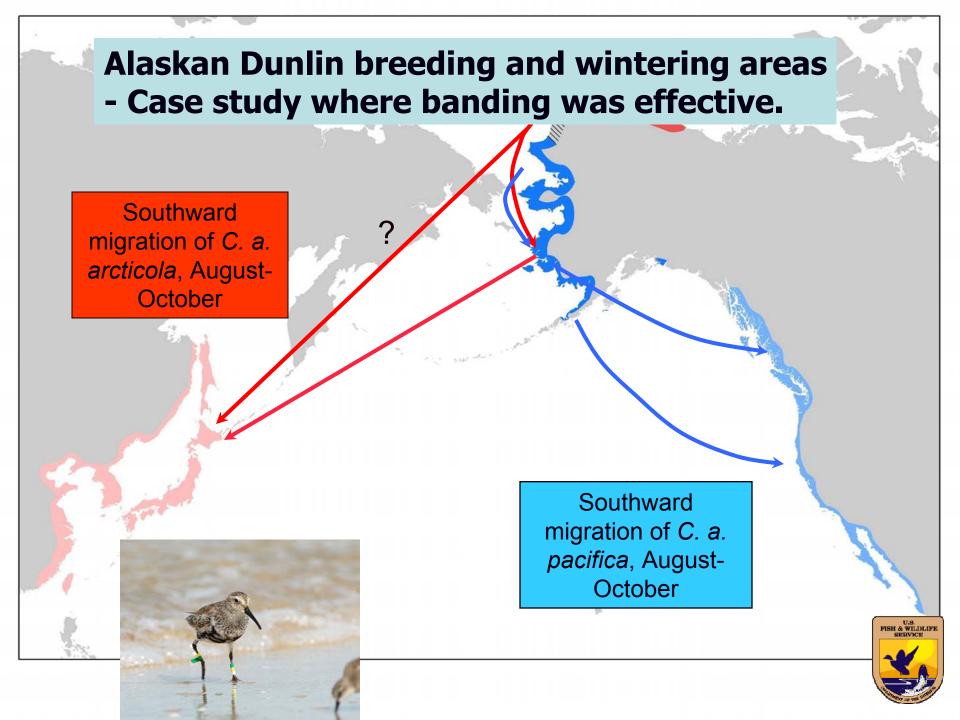




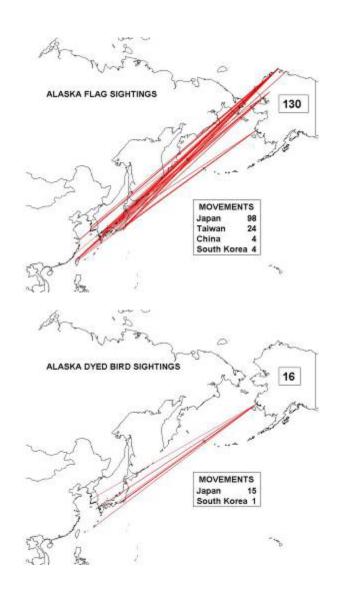


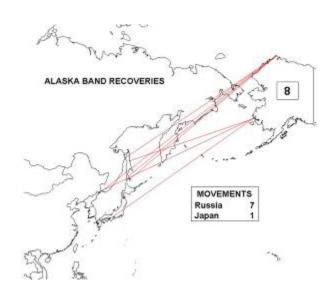
Banding of Animals

- Factors to consider?
 - Why are you banding the birds? What are your objectives? Are they realistic?
 - Obtaining a permit and metal bands
 - Coordination of banding with other people working with the same species.
 - What type of bands/markers to use?
 - Must determine band combinations and where to place bands
 - Random application to birds



Alaska Marked Bird Resightings in Asia

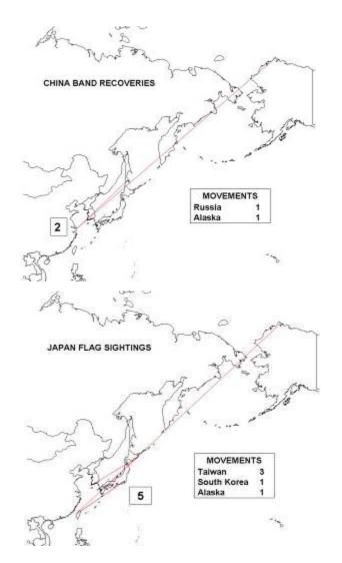


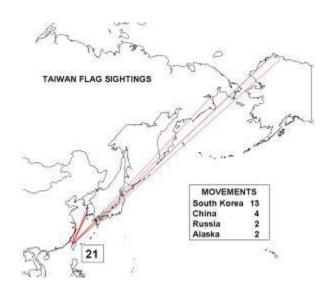


- Alaska birds have been resighted primarily in Japan and Taiwan.
- Few observers in other countries.
- Recoveries of AK-banded birds in Sakhalin (all in Aug-Nov) suggest arcticola dunlin migrate southwards via the Sea of Okhotsk.



Marked Bird Resightings in Alaska





 Dunlin banded in China, Taiwan and Japan have been seen in Alaska.



Aging and Sexing Individuals



AHY Male Buff-breasted Sandpiper



AHY Female Buff-breasted Sandpiper



Hatch Year Buff-breasted Sandpiper

Sexing Dimorphic species



AHY Male Pectoral Sandpiper

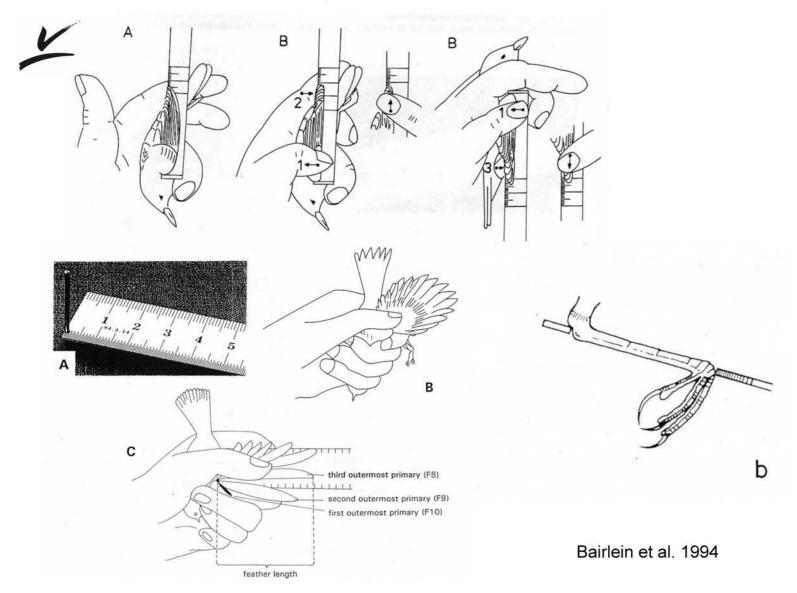


AHY Female Pectoral Sandpiper

Various measurements also are useful for separting sexes in many species.

But are there faeders (intermediate-sized birds) like in the ruff?

Morphology Measurements



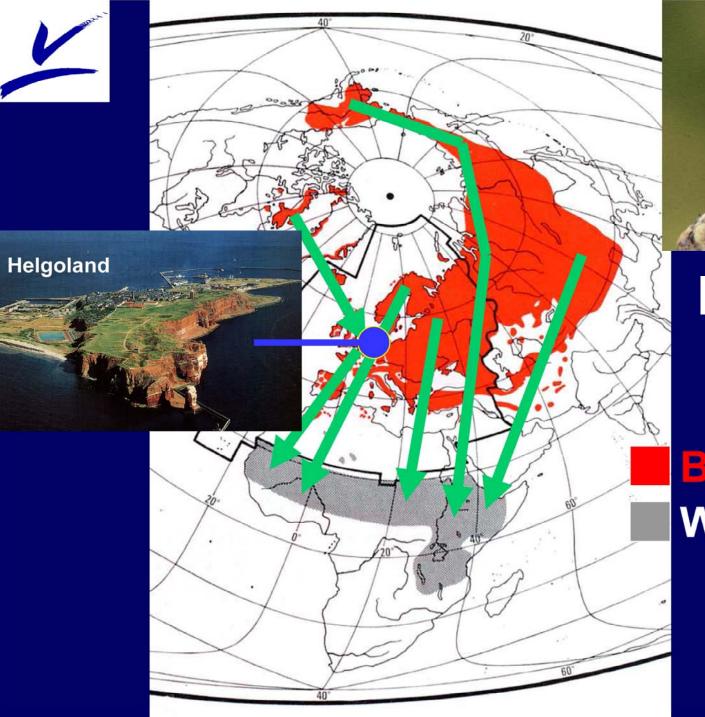




Weighing birds









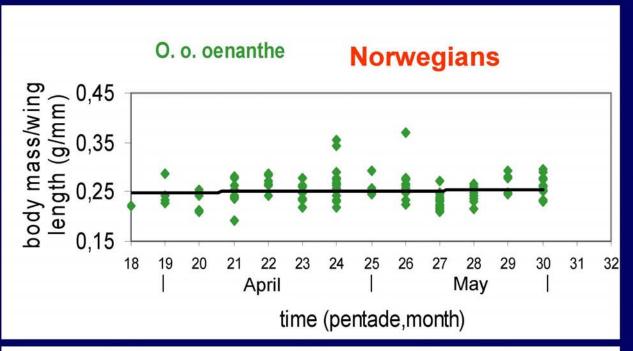
Northern Wheatear

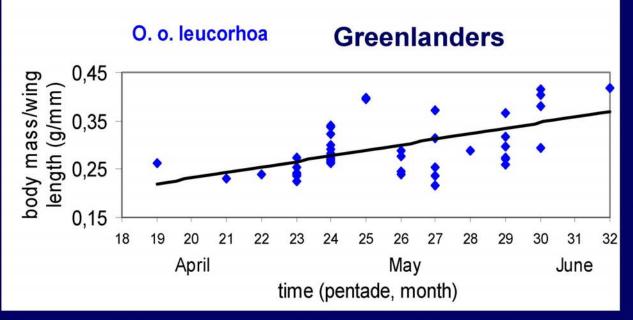
BreedingWintering



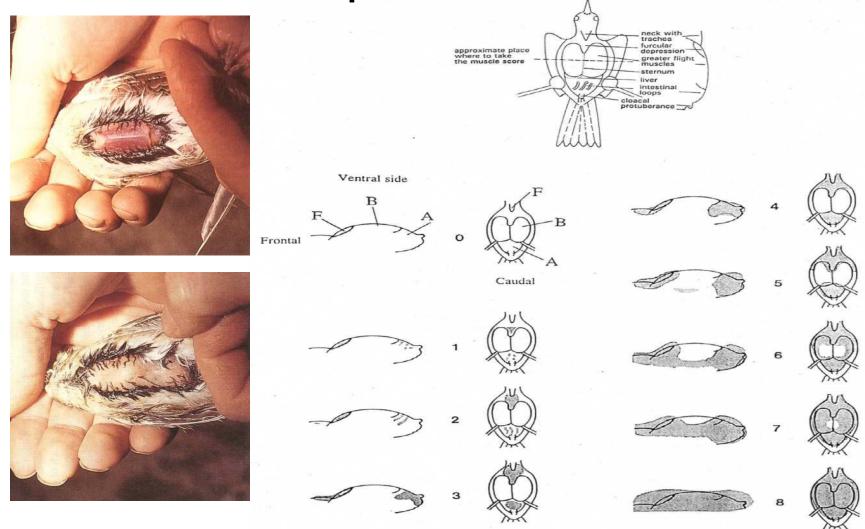
Helgoland





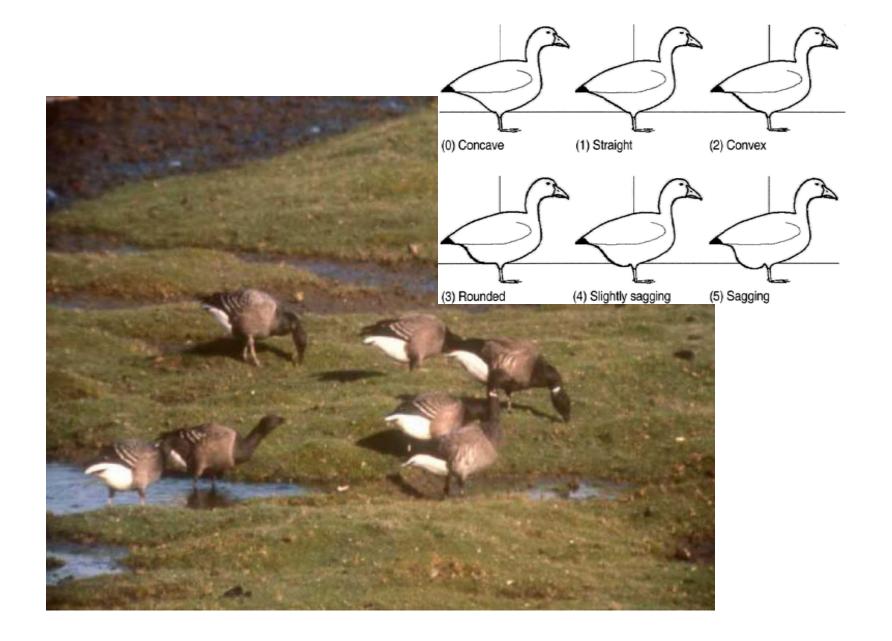


Fat Deposition



Bairlein et al. 1994







Avian Influenza Sampling



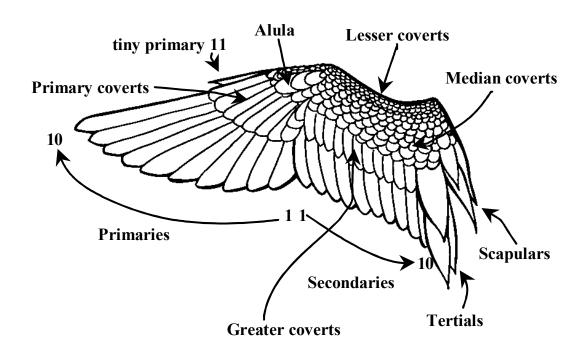
Moult

Plumages: succession

- Natal down
 - → prejuvenal molt
- 2. Juvenal pennaceous plumage
 - → First prebasic molt
- 3. Basic I plumage
 - → First prealternate molt
- 4. Alternate I plumage
 - → Second prebasic molt
- 5. Basic II plumage
 - → Second prealternate molt
- 6. Alternate II plumage



Feather Growth Scoring

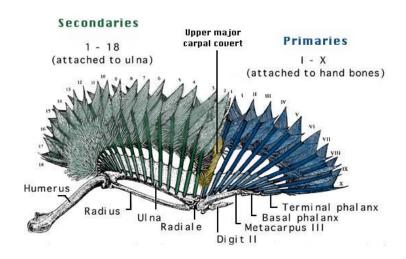


Primaries

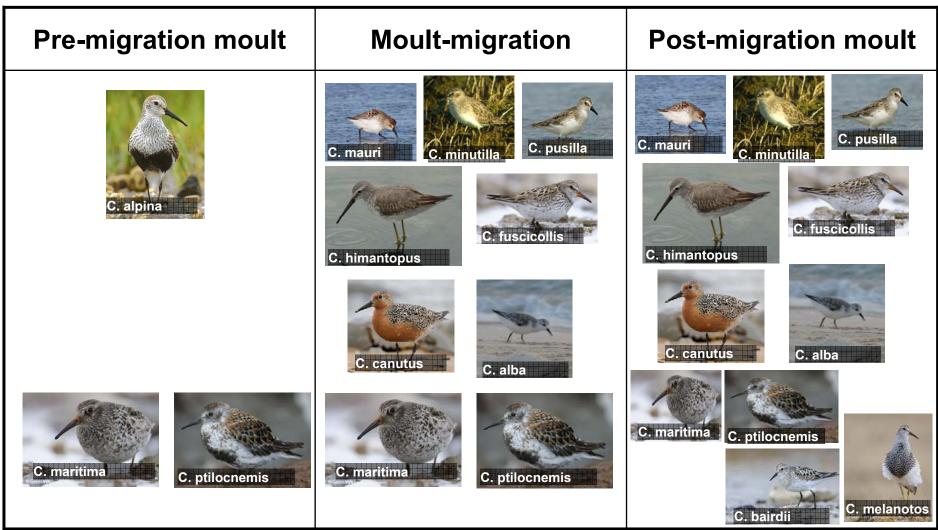
- Most birds have 10
- Storks, Rheas, Grebes, Flamingos have 11
- Ostriches have 16
- Some songbirds have 9
- Kiwis have 3-4

Secondaries

- 6 in hummingbirds
- 40 in albatrosses



Calidris: a diversity of moult strategies



Diversity among species AND within species



Moult progression

- individual feathers 0 (old) to 5 (new)
- total 0 (all old) to 100 (moult complete) for species with 10 feathers



- scale of 0-4



New feather just emerging from the sheath up to one third grown

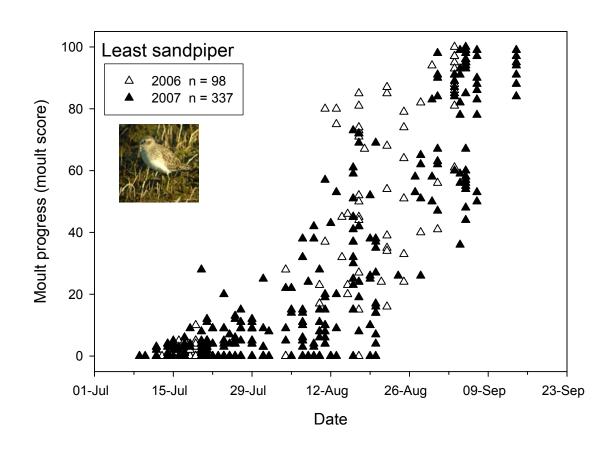
New feather between one and two thirds grown.

feather more than two thirds grown and with remains of waxy sheath at its base,

New feather fully developed with no trace of waxy sheath remaining at base.

Change in moult status

Moult Progression





Collect Feathers

- For stable isotope analysis requires knowledge of where feathers are grown (at least for some birds)
- Can clip ends of feathers (but be consistent), or pull entire feathers (these will be regrown)
- Try to avoid pulling flight feathers if birds are preparing to migrate



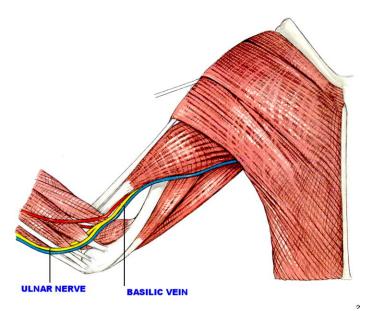
Collection of Blood

- Used primarily for 1) genetic analysis (sexing, paternity, population structure, phylogeography) 2) reproductive or stress hormones, 3) measure metabolic fuels, 4) local stable isotope signature, 5) examine immune function, and 6) track emerging infectious diseases.
- Method depends on amount of blood needed.
 Alternatives may be available: mouth swabs for DNA, toe clips, feathers for DNA and isotopes.
- Generally little negative effect from taking blood. See Sheldon et al. 2008. Effects of blood collection on wild birds: an update. J Avian Biology 39:369-378.

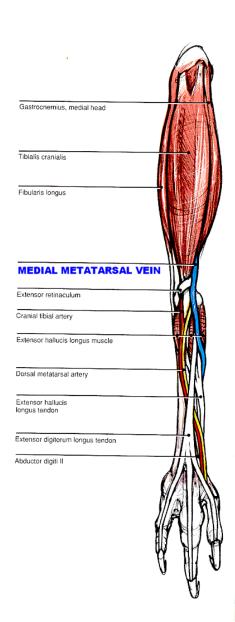
BASILIC (CUTANEOUS ULNAR; "WING") VEIN







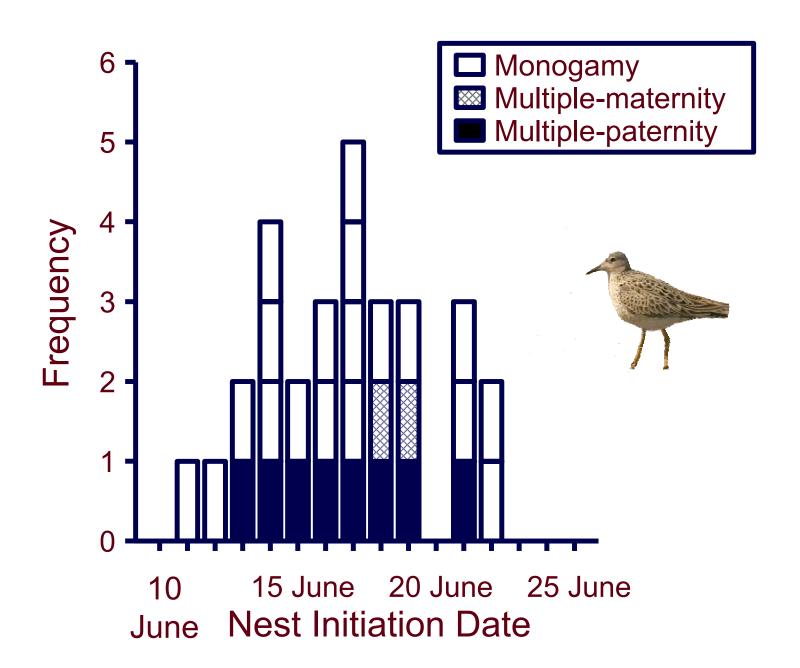




MEDIAL METATARSAL VEIN

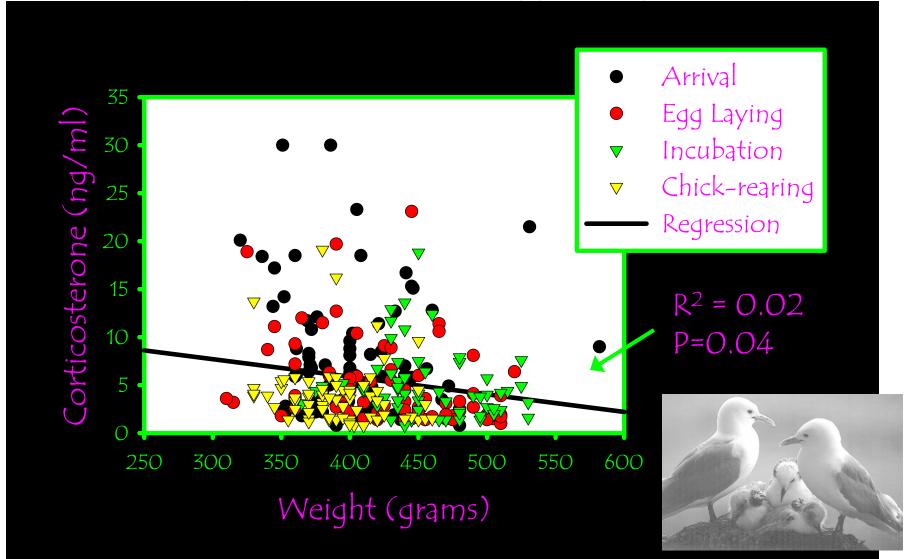






Heavy birds have lower cort levels.

Cort levels highest in arrival > egg laying > inc > chick.



Processing birds

- Things to consider
 - How accurately can the birds be measured? Aged? Sexed?
 - How much variation is there from person to person in obtaining data?
 - What parameters are most useful?
 - How much time do you have?
 - What should you do if the bird is injured or becomes stressed out?
 - Be organized and prepared.





