Cannon Net Training for Beginners

Delaware Shorebird Project

DELAWARE DIVISION FISH & WILDLIFE

U.S. FISH & WILDLIFE SERVICE

Delaware Museum of Natural History

Overview

You will be part of an international team studying shorebirds, particularly red knot (*Calidris canutus*). The major activities include: surveying areas used by birds, capturing birds to take measurements and mark the birds, resighting marked birds, and data entry.

This slide show is designed to orient you as a beginner. It will give you an overview of activities and tasks associated with the capturing, measuring, and marking of birds. You will be given further instruction on any tasks that you will be involved in. Tasks will be given on the basis of previous experience and learning opportunities, as well as the needs of the birds and research being conducted.

Additional training modules cover shorebird identification and resighting.

What will be Covered

- Safety Issues
- What to Expect
- The Various Jobs
- Sequence of Events During a Catch Attempt
- What to Bring

Cannon Netting

Cannon netting is a technique for catching birds that utilizes a large net. The net is fired over the birds, trapping them underneath. There is a short video of this technique on a later slide.

While there are a number of techniques for capturing birds, cannon netting has proven useful due to its ability to:

- Provide relatively good control of sample size and mix of species
- Ability to catch a large number of birds at one time.

With these advantages, comes the need for:

- A relatively large team to transport equipment and process birds
- Expertise and training to ensure safety for people and birds

Safety to people

Since explosives are being used to fire heavy projectiles from cannons, there is inherent danger involved in cannon netting.

Strict protocols and procedures will be followed at all times to ensure the safety of everyone.

- Listen carefully to directions.
- If you aren’t sure about something, please ask.
- Stay in base camp unless you are directed otherwise.
- If someone appears to be in danger let someone know.
- One person is in charge overall and will make final decisions.
- Small number of experienced people set up/fire cannon net.

Safety to birds

- Cannon netting is very safe for the birds if done by well trained and experienced operators. Protocols have been established to help ensure their safety, including:
  - The net is only fired if birds are on ground, in catch area, and out of the safety area.
  - The team is well organized and gets to the net quickly in case birds are in water.
  - Birds are covered as soon as possible to reduce stress
  - Any birds that seem weak or acting unusual will be identified and processed first or released immediately if appropriate.
  - Birds are handled calmly and quietly by the large team.
  - Time is tracked so that birds are not held for more than 4 hours.

Video of Catch

Firing Team

- While you will most likely not be part of the Firing Team, it is helpful for you to know what this Team does.
- The Firing Team will likely go out ahead of Base Camp
- They will Identify the catch site and location for Base Camp
- They will set the net, stay in position, and fire the net.
- They will have radio contact with Base Camp and may ask for support from Base Camp.

Cannon Net Layout

- The next several slides show how a cannon net is set for firing and how it deploys after firing.
- Familiarize yourself with the relative locations of the cannons, wiring, net, and ropes.
- While you most likely will not be in a position to see the set net, the picture below shows a net ready for firing. Note that this net is not camouflaged, so is easier to see than normal.

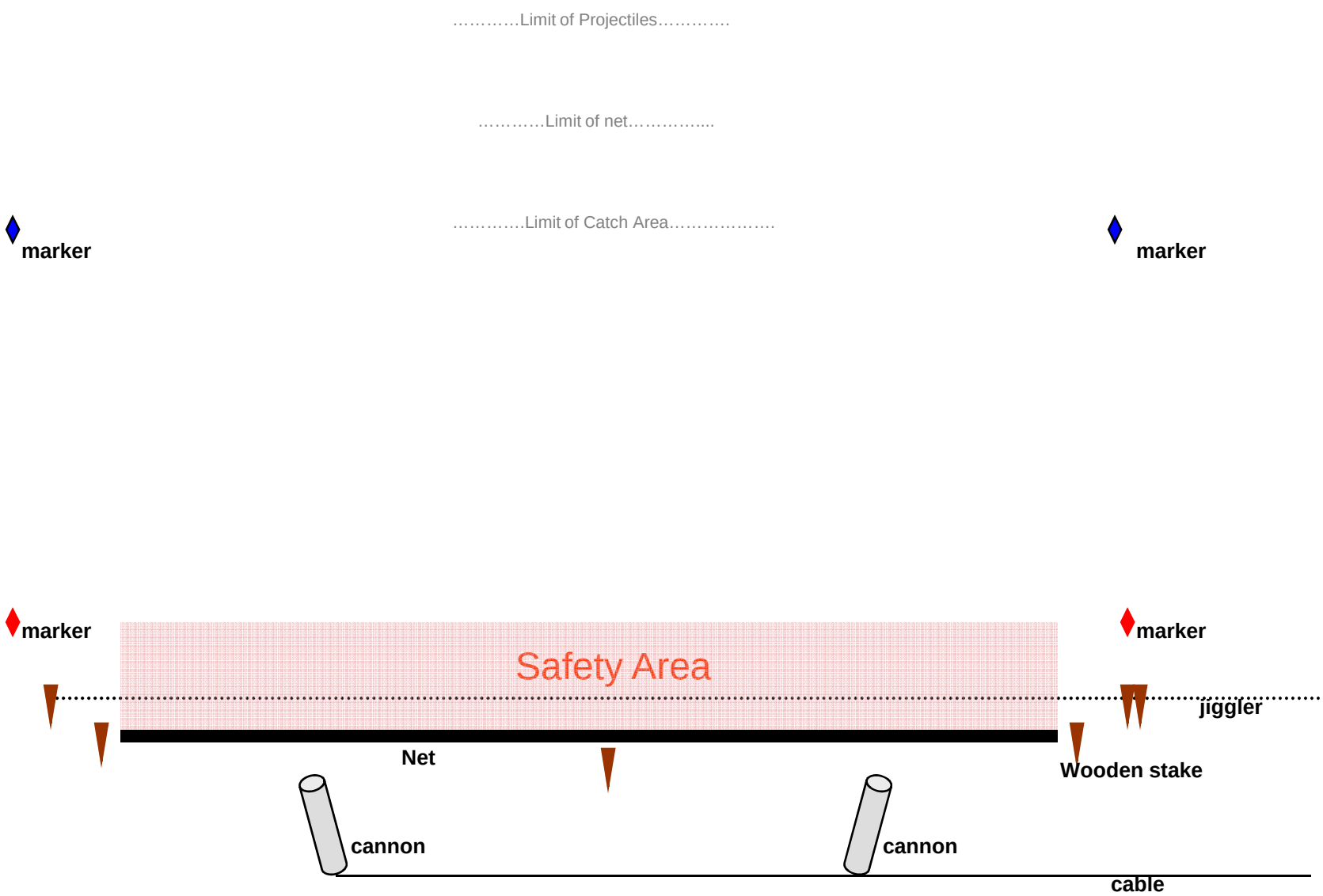

Diagram of a Cannon Net Set for a Catch

If you are in the Cannon Net Area Before it has been Fired:

- Do not walk in front of the net or unfired cannons
- Avoid tripping on the wires and ropes
- If two nets were used but only one was fired, do not go in front of the unfired cannons and net
- If you are not sure about something, please ask.

Net Firing

- The net is only fired if birds are on ground out of the safety area and in catch area
- Firing sequence maybe interrupted a number of times due to changing conditions
- Everyone in base camp must be ready to go instantly when a catch is imminent

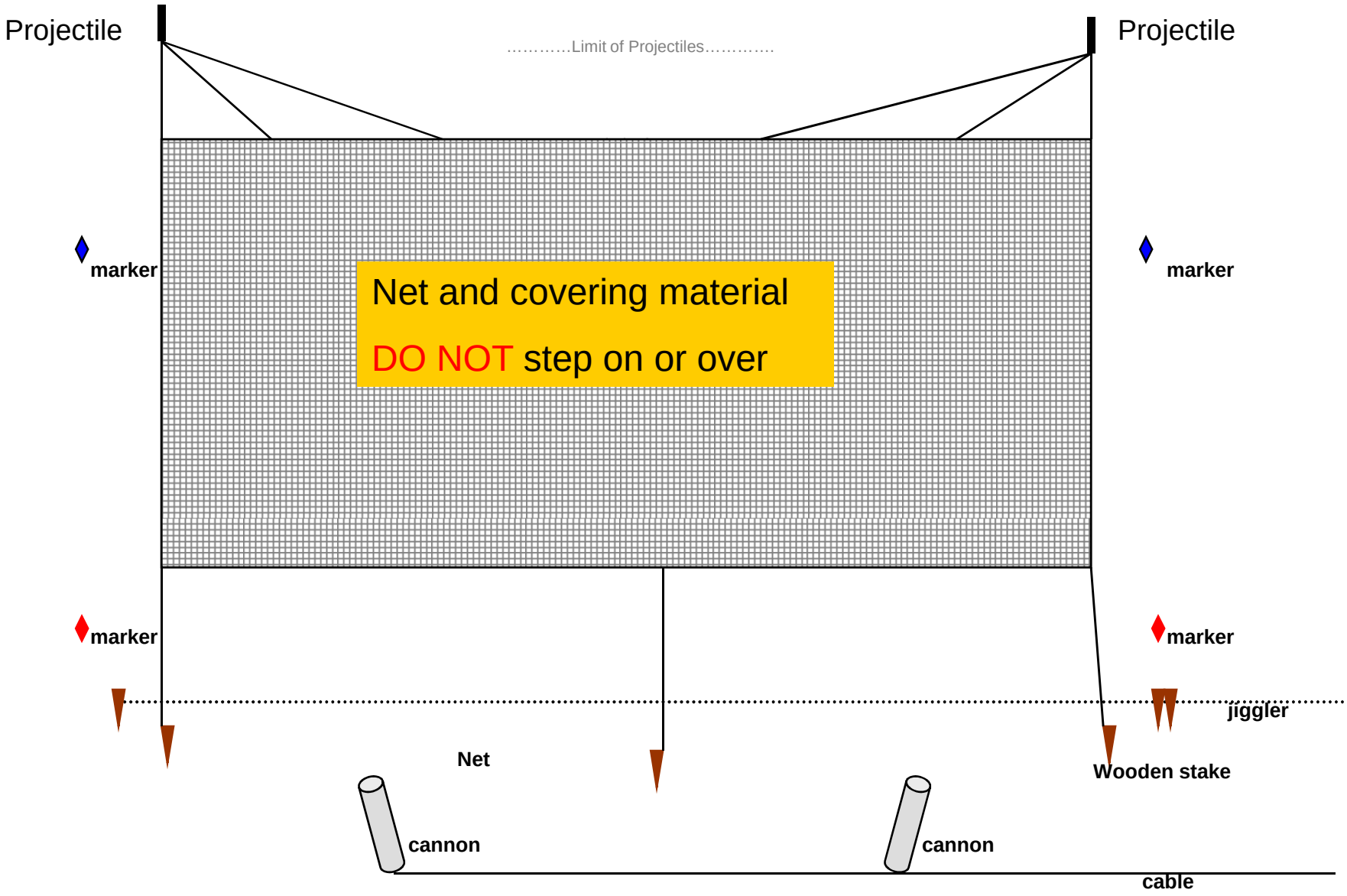

Diagram of a Cannon Net that has been Fired

After the Net has been Fired:

- Do not step on or over the net or covering material as you may step on an unseen bird
- Avoid tripping on wires and ropes
- If you see birds escaping from under the net alert someone
- If you see anything of concern, let someone know

Base Camp Team

- Most of the team and equipment is at Base Camp
- Base Camp usually arrives and sets up after the net is set
- Base Camp is usually out of sight of the catch area
- The Base Camp Leader will assign tasks and be in communication with the Firing Team. Let the Base Camp Leader know what your experience and interest is so that you can be assigned to an appropriate job. If you are uncomfortable with your assignment, let them know.
- Be prepared to wait a long time

Base Camp Tasks

- Carry and deploy the covering material
- Carry the carrying boxes and use them to transport birds to the keeping cages
- Carry and set up the keeping cages
- Runners to secure the rear of net
- Runners to the front of the net so birds can get out of the water
- Twinklers to encourage birds to move toward the catch area
- People to provide public relations for curious visitors
- Other tasks as needed

Cover Material

This is a common job for beginners. Two or more people will be assigned to carry and deploy the covering material. This material is used to cover the birds while they are under the net. This reduces stress to the birds by preventing them from seeing escape routes and human activity.

Six or more people will be needed to hold the covering material above the net and lay it down gently over the net with the trapped birds.

Do not step on or over the net.

Do not let the covering material drag across the net and birds. This could cause stress and injury. Instead keep it above the net and birds until it is in place then lay it down.

Do not step on or over the covering material once it is in place.

You may be directed to do other tasks as well.

Carrying Boxes

This is a common job for beginners. A number of plastic or wooden boxes will be used to transport the birds that have been extracted from the net to the keeping cages. Several people will be assigned to carry these boxes to the net.

Put a little sand in the boxes before using them. This helps birds maintain their footing.

Do not step on or over the carrying boxes if they are in an upright position.

Do not put different species in the same box unless you check and make sure it is OK.

Empty boxes should be put on their sides in order signify that they are empty.

Always double check that the carrying boxes are empty.

Keeping Cages

Two or more people will be assigned to carry and deploy the Keeping Cages, which look like burlap material sewn to metal frames. They are used to hold the birds that are waiting for processing. This gives the birds a chance to preen and reduces stress to the birds by preventing them from seeing escape routes and human activity.

Do not step on or over the Keeping Cages once they are set up.

One person (usually the person in charge of Base Camp) will be in charge of apportioning birds into the compartments.

Check with the person in charge of the Keeping Cages before:

- Adding birds to the compartments
- Mixing different species in the same compartment
- Adding birds to a compartment with 15 birds in it already

Carrying Box

Keeping Cage

Runners to the Front

One or two people will be assigned to run to the front of the net. In most catches the front of the net will be in the water and the people at the front will be in water up to their knees. Be prepared with appropriate (boots, old sneakers, sandals, etc) foot wear. Their job is to position themselves at the front of the net and lift the net (using the “tent” method, see next slide) to allow birds to walk toward the center of the net.

Do not step on or over the net or covering material.

Avoid tripping on the lead ropes attached to the cannon projectiles.

If the net is not in the water, their job is to put sand on the front edge to prevent escape.

If there is time, pick up the cannon projectiles and move them to the beach closer to the net, so the net can be moved more easily.

If not otherwise occupied, they should help spread the covering material over the net and trapped birds.

“Tenting” the net so birds can get out of the water

Reach for the center...

...pull up like a tent...

...leaving the front down.

Repeat moving toward rear and....

...drag the front of the net out of the water.

Runners to the Rear

One or two people will be assigned to run to the rear of the net. Their job is to secure the rear of the net by putting sand on the edge and untying the ropes that hold the rear of the net to the stakes so it can drape properly which will help prevent birds from escaping from underneath. You may need to wait, crouch down, or even move away temporarily to avoid interfering with the people at the front who are trying to move the birds out of the water.

Avoid tripping on the ropes and wires.

Do not step on or over the net or covering material.

If not otherwise occupied, help spread the covering material over the net and trapped birds. You may be directed to do other tasks as well.

Twinklers

Sometimes it helps to have someone positioned on the beach away from the net and/or to be walking along the beach. This can encourage birds to move into the catching area. This job will usually be assigned to more experienced team members and may involve a long walk or possibly driving a short distance away.

Twinklers may also be tasked with contacting the public for safety reasons, or in scouting for and estimating numbers of birds in the general vicinity.

Public Relations & Other Tasks

People frequently see the cannon netting operation and are curious about what is going on. This presents a good opportunity for education and outreach. One or more people will be tasked to explain what is happening. This may occur while waiting to make a catch or during processing.

Each catch is different. Depending upon the circumstances a number of other jobs may be needed. Each job will be explained and only jobs within your abilities will be assigned to you.

If you are uncomfortable with the tasks assigned to you let us know.

Catching and processing birds may take a long time. Be prepared to spend an entire day in the field under potentially adverse conditions including rain, wind, heat, humidity and bugs. To maintain personal comfort please bring the following:

- Sunscreen
- Hat
- Bug repellent
- Warm clothing
- Rain gear and appropriate foot wear for wet conditions
- Snacks and water

When the Net is fired

- Firing Team will keep base camp informed
- Runners/Carriers should be in front ready with equipment
- DO NOT GO IN FRONT OF ARMED CANNONS
- First get birds out of water (*"tent" method)* & control rear of net to prevent escape.
- Second cover trapped birds
- DO NOT WALK ON OR STEP OVER NET

A Note About Cannons

The condition of a cannon is indicated by how the wires are wrapped:

Cannon armed and ready, wire wrapped around

Cannon has been fired, wire broken off

Cannon armed but did not fire, wire split and each part wrapped in opposite direction

Cannons that have not fired but are still armed should be treated the same a one ready to fire. These cannons will be examined later and re-assembled.

Extracting birds

- After the Keeping Cages are set up, one person will control the distribution of birds among the compartments.
- Only experienced extractors will extract birds
- Carriers will take carrying boxes to keeping cages and then go back to the extractors for more birds
- DO NOT WALK ON OR STEP OVER NET
- DO NOT STEP OVER KEEPING CAGES
- DOUBLE CHECK NET & COVER MATERIAL FOR BIRDS

Setting up for Processing

- This happens after birds are in keeping cages
- Remaining equipment is brought to processing site
- Cannon net gear is collected and removed from beach
- Fill in holes, etc.
- Spread net to dry
- Set up roof (shade or rain) and/or wind break if needed
- Teams will be set up for processing

Color Marking Team

This team is separate from the processing team and usually they handle the birds first. This is usually done by three people and the second two jobs are good ones for beginners.

- The Flagger puts the flag and any colored rings on. These identify the bird as an individual. They also take feather samples. They must be on the lookout for poorly formed or inscribed flags and rings.
- The Gluer simply puts a small amount of glue on the flag or ring. Note that you will get glue on your hands and clothes.
- The third person simply holds the bird.

Processing Team

- Scribe (leader)
- Bander (sometimes called the ringer)
- Age, BMI, Plumage, Wing Length
- Head and Bill Length
- Weight

NOTE: The next few slides will give a sense for what is done by each team member. Technique is critical. You will receive hands on training and will be checked to make sure you are capable of doing these tasks accurately before actually doing this.

Scribe (processing team leader)

- Scribe records the information collected. Controls workflow of processing and stops the team at times if necessary.
- They must write clearly.
- Records the time of weighing to later account for weight loss while birds are held.

Bander (ringer)

- Puts the metal band (ring) on or tells the scribe what the band and color combination of a recaptured bird is. This identifies the bird as an individual.
- Must be on the lookout for poorly stamped bands.
- Needs to be able to read small numbers.

Age, BMI, Plumage, Wing

- Determines age class
- Determines body molt index (BMI)
- Determines stage of breeding plumage
- Measures wing chord

Head and Bill

- Measures length of the bill
- Measures the total length of the head and bill.
- A good job for beginners

Weight

- Measures body weight
- This gives an idea of how well the food supply (horseshoe crab eggs) is meeting the needs of shorebirds
- A good job for beginners

A Note About Handling Birds

Shorebirds are easy to handle. They generally do not bite or claw. While they do not struggle a great deal, if the opportunity presents they will be gone in an instant. Be gentle when handling but maintain contact and control of the wings. The basic grip is the bander's grip…

…which allows good control and access. Note that the head is between the bander's middle and index finger, while the thumb and remaining fingers surround the wings.

If you work calmly and quietly, the birds will remain calmer as well.

Additional Notes

- One person is in charge of the catch and needs to be free to move around and solve problems that arise
- Birds will need to be brought to the flagging and processing teams
- Birds will need to be released after processing
- Public relations is an important task if there are curious visitors
- HANDLE BIRDS CALMLY AND QUIETLY
- Report any birds that seem stressed or acting unusual.
  - Birds that are just sitting in keeping cages
  - Birds that cannot stand on their own
  - Lethargic birds
- Double check carrying boxes and keeping cages for birds.

Summary

- Safety of people and birds is the highest priority
- Do not walk in front of armed cannons
- Avoid tripping on ropes and wires
- Do not step over or on the net, covering material, carrying boxes, or keeping cages
- You will have a chance to familiarize yourself with the equipment
- You will receive training as needed
- Let your team leader know of your experience, interest in learning new tasks, and ask questions if you are not sure

Final Words

- Cannon netting is complicated and at times things move fast. Do not be overwhelmed by this.
- As a beginner, you will be trained and given tasks within your abilities.
- You will be working with experienced and helpful people who can answer questions, so ask if you are not sure and use slow periods to learn more.
- You will be part of an International effort to learn and monitor one of the World's most interesting and amazing events.

Credits

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