

FLAMINGO STUDY

Volume I

Flamingo ringing

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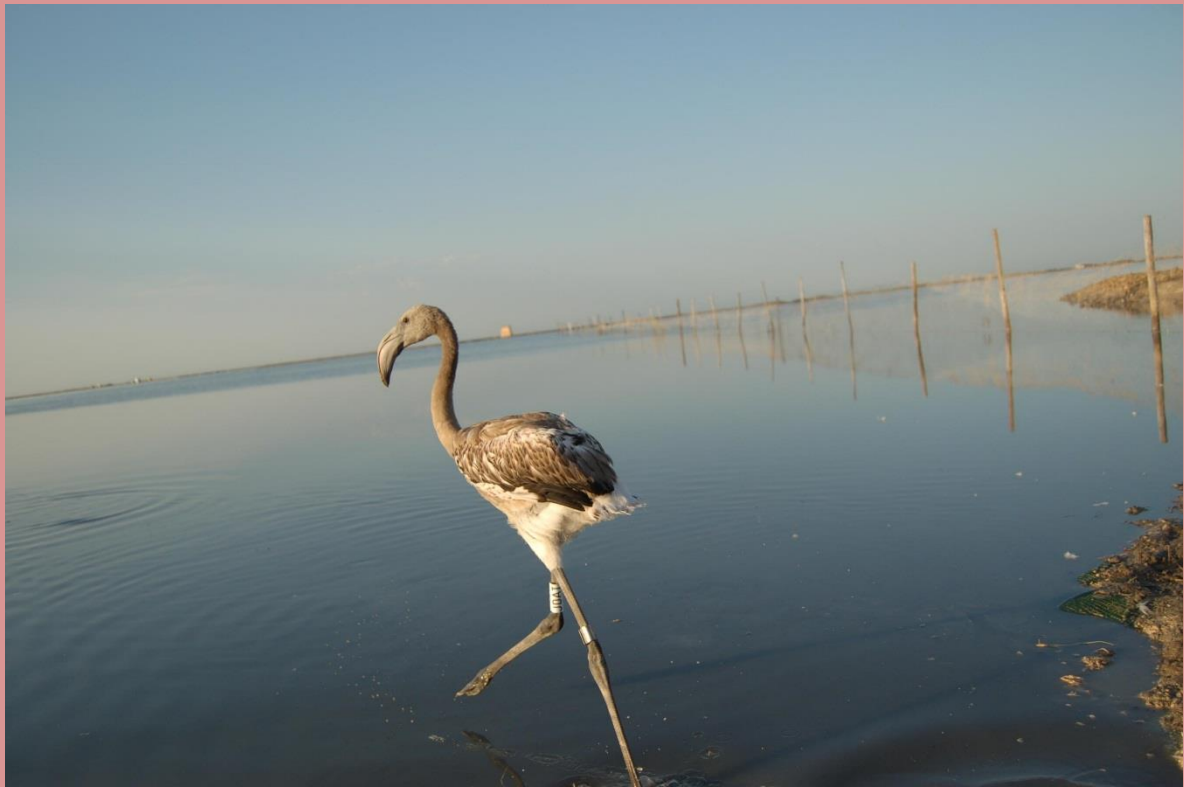


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RATIONALE FOR RINGING

The ringing of greater flamingos with PVC rings aims at tracking individuals in time and space all along their life in order to better understand the behavior, demography and ecology of the species. This knowledge is critical for sound conservation planning.

RINGING PERMISSION

In France, ringing permission is obtained as part of a personal ringing program delivered by the Centre de Recherche sur la Biologie des Populations d'Oiseaux (CRBPO) which depends on the Museum National d'Histoire Naturelle (MNHN). All the persons in charge of putting the ring on flamingos are experienced ringers in possession of a ringing permit. Stainless-steel rings are bought from Porzana (UK). Ring codes are provided by CRBPO. PVC ring codes are defined by Tour du Valat in coordination with the Mediterranean and West African Flamingo network and are supplied by INTERREX (Poland).

TIMING OF THE RINGING

The crèche, or part of it, is captured when the oldest chicks are almost fledged and no longer vulnerable to predation by gulls. This is usually at the end of July or in early August, **on average 106 days after the start of laying** (range 91-161, n=24), when the chicks are aged 35-77 days. Flamingos can fly at an age of 80-81 days on average in the Camargue, although in 1978, only 103 days after the start of laying, a few juveniles avoided capture by flying at a maximum age of 73 days. In contrast, in 1994, 114 days after the start of laying, many chicks, then aged 32-85 days, were considered still too small to be herded. It is important to take into consideration the fact that chick growth may depend on years (variation of food availability) **but also that it will continue for 6-12 months after fledging.**

PARTICIPANTS, ROLES AND RESPONSABILITY

Flamingo ringing is an extraordinary opportunity to raise awareness of a large public and increase capacity building of local naturalists. For those who have participated, it is a memorable event, usually beginning with an impressive sunrise soon after the start of beating, and terminating with a nourishing breakfast on the beach and a bathe in the Mediterranean to wash off the mud. Preparations for the capture and marking operations should begin several weeks in advance with the invitation of participants. In the Camargue, the personnel of the salt pans, local conservation organizations, visiting scientists, inhabitants of the surrounding villages and local personalities assist Tour du Valat staff in catching, banding, weighing and measuring the chicks. Invitations should be sent well in advance to ensure an appropriate number of participants.

Teams should be prepared in advance. They should be equilibrated with both experienced and less experienced people and should contain no more than 20 persons. There should be one Leader/Responsible per team among which there may be one in charge of coordinating the beating with all the other team leaders. The team leader should be experienced but may not be the ringer -and it may even be better if it is not the ringer- as the team leader has to check regularly that all participants of the team are playing their role correctly and until the end of the operation. **The team leader should not be shy and should have some natural authority.** The typical composition of a banding team:

- 1 person in the little pen
- 1 ringer + 1 assistant ringer
- 1 measurer + 1 assistant of the measurer
- 1 weightier + 1 assistant weigh (and feather collector).
- 6 to 10 carriers

For 800 chicks to ring, we generally use 12 teams, 10 ringing team and two small teams (of 3 to 5 persons) in each corral. **A ringing team generally has 80 flamingos to ring.**

In case medias are invited to cover the operation **they must be briefed together with the participants in order to avoid bad surprises during the beating.** Indeed, photographs and cameraman may want to be close to the corral to take pictures and therefore they may prevent the crèche from entering the corral. We usually designate specific participants of our staff to be in charge of the media and control their movements and we integrate them into a beating team to avoid that they move freely during the operation.

TEE-SHIRTS

In order that the participants find their team easily in the morning at dawn, we provide tee-shirts to each participant with one different color per team.

BUILDING THE CORRAL

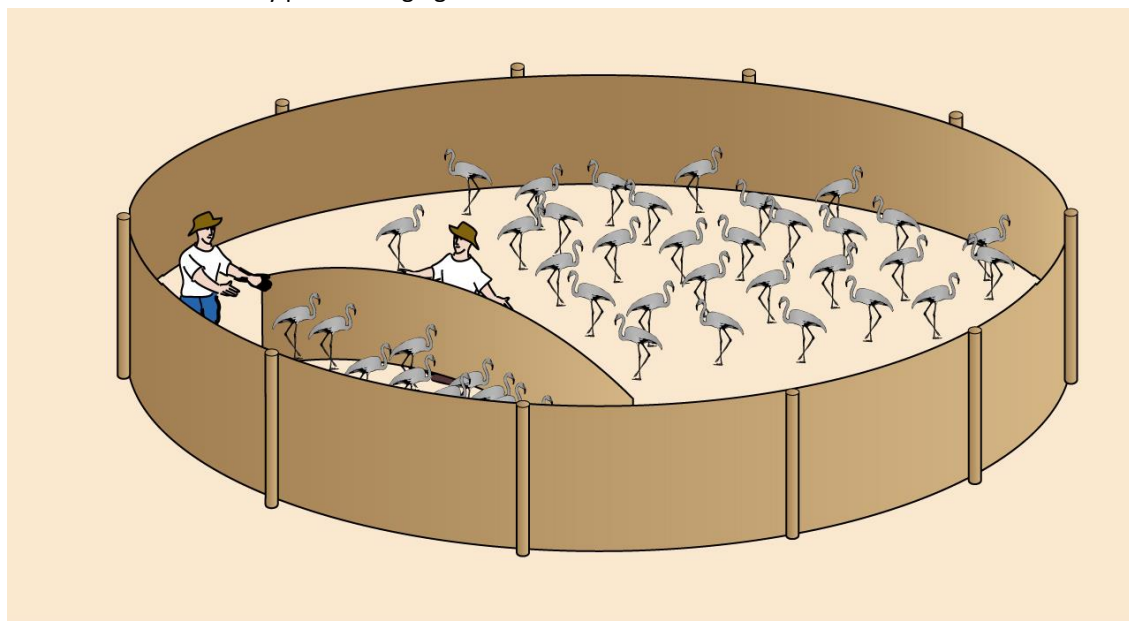
The corral must be built on a dry area with a soft slope from the water area so that chicks do not have to cross an obstacle to enter in it. Depending on the size of the corral it may take a few days to be built.

The corrals are c. 10 m in diameter per 400 chicks. **In France, when we capture 800 chicks, we generally build two interconnected corrals, one beside the other one so that we can then isolate two different pools of 400 individuals after the capture.** It is extremely important to have corrals that are large enough **so that chicks do not pile up one above the others.** The fence must 1,20m-1,40 m high and be covered with opaque canvas so that the movement of the ringers do not frighten the chicks.

Additionally, we generally use two half-moon opaque mobile fences (3 meters wide) that can serve to isolate a pool of chicks easily within the corral and avoid running after them.

The corrals have two wings (generally forming an angle of about 45°) of fences (no canvas there) which allow driving the chicks into it. The wings are generally 50 meters long each.

We then set up small pens around each of the corral so as to add a supplementary buffer between the large corral and the start of the ringing. 2 to 3 chicks can be stocked in these small pens which are generally 2x2 meters in size. There are as many pens as ringing team.



BUILDING AN INFIRMARY

Birds presenting casualties (or fatigue) are brought into an infirmary, which consist in a small corral of 3x4 m cover with canvas for protection from the sun and far enough from the operation so that the chicks can rest there.

INFORMATION MEETING

On the day before the ringing, all participants are briefed on their roles during the operations. The information meeting starts by a general overview of the importance of ringing and of the results obtained by such programs. Then, sub-meetings should be organized by teams (5-10 minutes) and then by roles (5-10 min). These last sub-meetings consist in one experienced ringer briefing the other ringers, one experienced measurer briefing the other persons in charge of measures, and so on. A key message to convey is that ringing is a risky operation for chicks and that following the instruction of the team leader and of experienced ringers is critical. We generally take the opportunity of this meeting to distribute an information booklet, reminding key elements of the ringing.

- In the morning, be on time at the meeting place.
- Observe all instructions from your team leader which can be recognized by his yellow security jacket.
- Do not forget: hat / cap, shorts, T-shirt, windbreaker and sports shoes to walk on dikes and in the water.
- All photographic activity is forbidden during the operation so as not to hinder its smooth running.

BEATING

The beating consists of encircling the crèche of chicks so as to direct it towards the corral. Herding of the crèche begins at dawn, the coolest part of the day. Beaters spread over the lagoon in strategic positions to rapidly encircle the chicks and drive them, between the convergent fenced wings, towards the corral. Communication between the leader of the beating and other team leader can be ensured with talkies-walkies. It is critical that the beating be well coordinated. Canes of Provence may be used to prevent chicks from escaping between the beaters. Very delicate operation, the success of the beating depends very much on the responsiveness of the participants to the instructions of the team leaders. Do not speed up or slow down unless the team manager orders other thing.



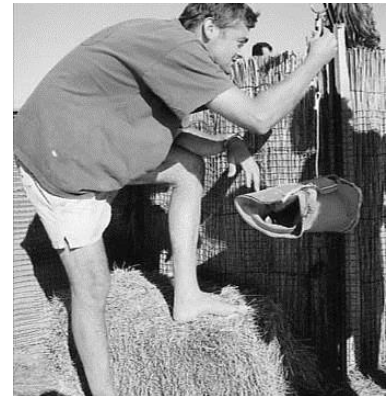
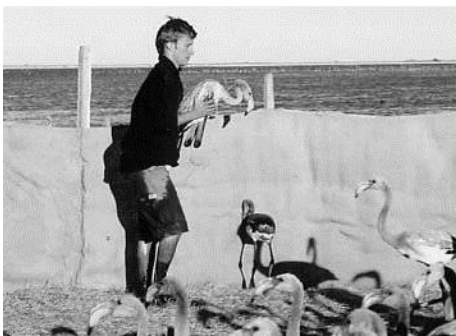
If any molting adults enter the pens ahead of the main herd of chicks, they are allowed to escape by a rear gate. This gate is then closed by someone who remains hidden behind the door. Another observer is hidden at the main entrance. When the predicted number of chicks are in the corral, the person in charge of the count should close the entrance of the door. The beating should stop in that moment. The beaters then move very rapidly to the nearest fence so that the remaining chicks, usually several thousands, can escape. The "hall" of the corral, i.e. the space between the convergent fenced wings, must be cleared up as soon as possible to allow

the rest of the crèche to escape. Chicks released generally reassemble as a crèche at their preferred loafing spot, where they are joined shortly afterwards by those released from the pens.

The final step of the beating is quite delicate because the chicks can be piled up in the fenced wings of the corral. If that happens, it really important to take the chicks with the hands and pull them rapidly of the stack of the fence. In order to avoid that, we ask some teams to go along the fence of the wings in order to play themselves the role of a fence and also be ready to prevent the chicks from piling up.

RINGING

Once the beating is finished, each chick is taken care of by a carrier who carries it successively to the ringer, to the measurer, to the weightier, to the feather assistant, to the sampling stations then to a person who determines his age (See memos in Annex).



The chicks are transferred to the small pens by a team of 5-6 capturers in each corral. There is a handler assigned to each of the small pens and they pass the chicks to the porters for processing. The corrals and the pens are straw-lined to prevent the chicks from getting mud on their plumage, and the wire-netting is draped with hessian sacking in order to prevent them from injuring their bills. Separating the chicks into smaller groups reduces the risk of trampling and injury.

The chicks are handled one at a time to the teams around the pens. They are first marked with a laminated polyvinyl chloride (PVC) leg-band on the tibia and a stainless-steel ring on the other. Wing and tarsus length are then measured, as an indication of age, and the birds are weighed. 2-3 small feathers are collected on the back of the chicks and conserved dry in envelopes for further isotope or genetic studies. In some years, blood samples and feather lice have been collected for specific studies. Birds are released by putting them on the ground with the leg bent to their body and then they are let to stand up on their own. Be careful with the legs hurting the ground at this stage.

The last birds to be handled are generally released after less than two hours in the pens.



COMMON PROBLEMS ENCOUNTERED DURING CAPTURE AND RINGING

Chicks piling up

Any observation of a piling event should be managed extremely quickly as flamingo chicks can die rapidly from such an event either in drown into the water or simply by suffocation on the ground. The priority is to gather 2-3 persons to extract the chicks from the pile as fast as possible.

Capture myopathy

Capture myopathy is frequent in flamingos which cannot raise on their legs after the operation. To avoid capture myopathy, everything must be done to avoid the chicks spending time **running** in the corral. Also we have encouraged bird carriers to avoid to tighten the legs of the chicks too strongly. The stress of running for a long time has been shown to favor such capture myopathy.

Media obstructing the operation

Taking care of the media in a preventive way is key to the success of the operation. The best is to have photographers or cameraman taking part of the beating operation so that they are not interfering with the process. During the ringing operation they must be located around one team and be able to see all parts of the process without interfering with the movement of the participants.

ANNEXES

Example of memos distributed by team leaders to the responsible of different activities during the ringing.

Memos for ringers and ringing assistants

Combinations of metal rings and plastic rings are prepared and pre-marked on the ringing sheets:

BAGUAGE FLAMANTS 2005			EQUIPE n° 3				
			Bagueur : Antoine ARNAUD				
			Assistant Bagues : Marie BOURJADE				
	Bague PVC	Sens	Bague Métal		Bague PVC	Sens	Bague Métal
série 3.1	FNSA		X2701	série 3.2	FNVA		X3573
	FNSB		X2702		FNVB		X3574
	FNSC		X2703		FNVC		X3575
	FNSD		X2704		FNVD		X3576
	FNSF		X2705		FNVF		X3577
	FNSH		X2706		FNVH		X3578
	FNSJ		X2707		FNVJ		X3579
	FNSL		X2708		FNVL		X3580
	FNSN		X2709		FNVN		X3581
	FNSP		X2710		FNVP		X3582
	FNSS		X2711		FNVS		X3583
	FNST		X2712		FNVT		X3584
	FNSV		X2713		FNVV		X3585
	FNSX		X2714		FNVX		X3586
	FNSZ		X2715		FNVZ		X3587
	FNTA		X2716		FNXA		X3588
FNTB		X2717	FNXB		X3589		

Ringer:

Be sure to respect the order of the rings threaded on the rods, divided into two to three numbered lots each comprising 2 PVC rods and a metal rod. The batches and rings of the batches must be taken in order. If in doubt, please refer to the ring assistant.

Please, alternate the direction of installation of PVC rings !!!

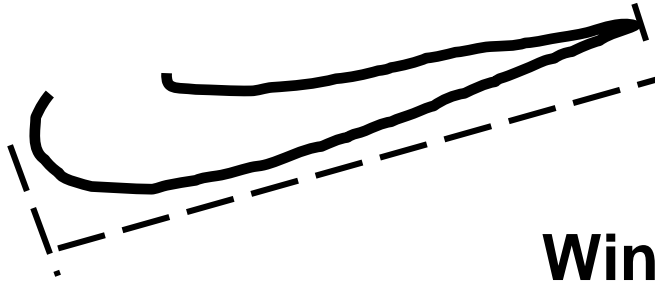
The variability of reading directions often allows us to detect reading errors when birds are observed later. If you lose a plastic ring or metal ring, keep the associated ring in your pocket and proceed to the next combination.

Ringer assistant:

Be sure to check throughout the operation that the ringer follows the combinations listed on the sheet and help him or her string together the batches of rings correctly: example team 3: start with lot 3.1 then lot 3.2 then 3.3.

Memo for the measurer

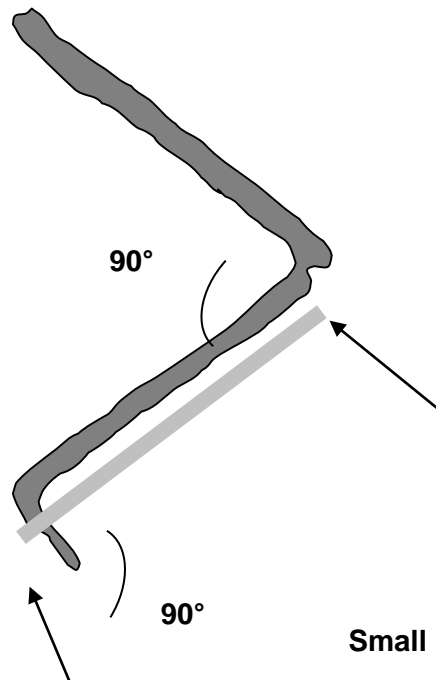
Only the measurement of true tarsus (small measurement - see below) must be made.



Wing

Maximum length of the wing
in closed position

Tarsus



Small measure

To give to the nearest mm

Memo for assistant measure

Check that the names of the measurer and the measurement assistant are correctly written.

Check that the marked measurement corresponds to the bird whose ring is noted at the beginning of the line.

Record the measurement to the nearest mm and do not round.

In case of doubt: you have misunderstood or the measure is out of the usual range, do not hesitate to have the measurement repeated by the measurer.

BAGUAGE FLAMANTS 2009

EQUIPE n° 3

Mesureur : Benjamin NYS

Assistant Mesures : André BLASCO

	Bague PVC	Tarse	Aile
1	JAAA	221	355
2	JAAB	220	335
3	JAAC	170	233
4	JAAD	225	305
5	JAAF	215	319
6	JAAH	235	340
7	JAAJ	195	312
8	JAAL	200	239
9	JAAN	200	318
10	JAAP	215	298
11	JAAS	204	327
12	JAAT	195	327
13	JAAV	220	314
14	JAAZ	195	300
15	JAAZ	202	322
16	JABA	194	293
17	JABB	177	215
18	JABC	200	329
19	JABD	195	233
20	JABE	212	326

	Bague PVC	Tarse	Aile
31	JACA		
32	JACB		
33	JACC		
34	JACD		
35	JACF		
36	JACH		
37	JACJ		
38	JACL		
39	JACN		
40	JACP		
41	JACS		
42	JACT		
43	JACV		
44	JACX		
45	JACZ		
46	JADA		
47	JADB		
48	JADC		
49	JADD		
50	JADF		

Memo for team leaders

At the information meeting:

- 1) Get your instruction bag, yellow jacket and t-shirts
- 2) Put on your yellow jacket.
- 3) Hold your board straight with the team number.
- 4) Distribute T-shirts to each member of your team.
- 5) Give their "memo" to the ringer, the ring assistant, the measurer, the assistant, the weigher, and the assistant weigher / pen.
- 6) **Find your carriers + and present it to other carriers**
- 7) Explain in a few words what the operation will be and answer the general questions.
- 8) Emphasize the presence required at the exact time the next morning at the venue.

The morning of the banding:

Meeting point

Get your panel with the team number from John Doe (the beating leader).

Place yourself with your sign in the schematic position on the attached map. Shout your team's number loud and clear so participants can find you easily.

Check the presence of all members of your team.

For the pair teams, report any absence to Jane Doe (Accompaniment of observers).

For odd teams, report any absence to John Doe.

Beating

Respect the instructions of the head of beating: John Doe.

To avoid overcrowding, teams 1, 3, 2 and 4 will fold outside the wings.

Ringling

Once the flamingos are in the corral, take the time to re-explain to your team members what is expected of them.

Avoid the usual precipitation of the ringer who, head down, starts to ring as soon as possible without his teammates have been able to adjust.

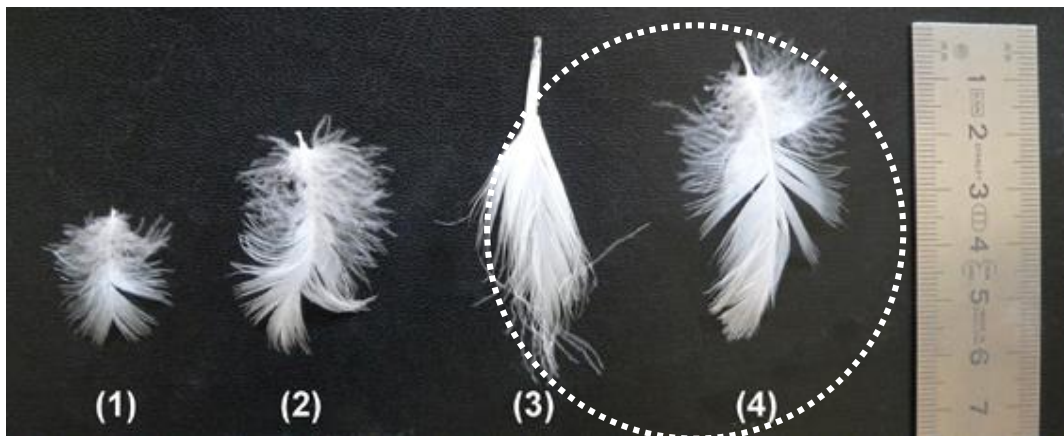
During ringling, check that there is no absenteeism and that everyone is performing their role correctly.

At the end of the ringling, gather the assistant sheets, the boards and the ringling material and leave them at the foot of the weighing hook.

Memo for weighers and assistant weighers / feathers

Weigher:

- Weigh the bag regularly.
- Place the flamingo in the weigh bag with the legs folded under the belly.
- Weigh it and say the mass to the feather assistant **without rounding**.
- Then take 3-4 growing feathers on the back, belly or inner edge of the wing for sexing. The photo below shows the size of the pens needed for sexing. Do not take feathers that are too big (flying feathers) or too small (> 4cm).
- NEW! Finally take a feather from the top of the skull. This pen can be small and does not need to contain blood because it is **its color** (degree of melanism) that interests us.



Assistant weigher/feathers

- Write the bird's mass on the sheet at your disposal. For each symbol ☺, ask the weigher to weigh the empty bag and note the value.

BAGUAGE FLAMANTS 2009

EQUIPE n° 3

Peseur : Yoann PERROT

Assistant Peseur / Plumes : Deirdre "Di" FLANAGAN

	Bague PVC	Masse sac vide	Masse Flamant + sac
1	JAAA	☺	
2	JAAB		
3	JAAC		
4	JAAD	☺	
5	JAAF		
6	JAAH		
7	JAAJ	☺	
8	JAAL		

	Bague PVC	Masse sac vide	Masse Flamant + sac
31	JACA	☺	
32	JACB		
33	JACC		
34	JACD		
35	JACF		
36	JACH		
37	JACJ		
38	JACL		

Introduce the pre-numbered envelope to the weigher so that it introduces the feathers without the risk of touching the tip of the feathers with your fingers.

Memos of observers and media

Adult observers are under the responsibility of John Doe. The child observers are under the responsibility of Jane Doe.

The child observers will be able to approach in groups of 2-3 persons accompanied by a person in charge and will be able to follow a flamingo throughout the process of banding led by the team X (John Doe).

Adult observers will be able to approach in groups of 2-3 persons accompanied by a person in charge and will be able to follow a flamingo throughout the process of ringing led by team Y (Jane Doe).

After following a carrier throughout the process they will be able to position themselves near the wings, North-East side so as not to hinder the movement of teams "profilers".

Media will be authorized to interview only John Doe during the operation. Once the operation is finished they will be authorized to interview any participants.