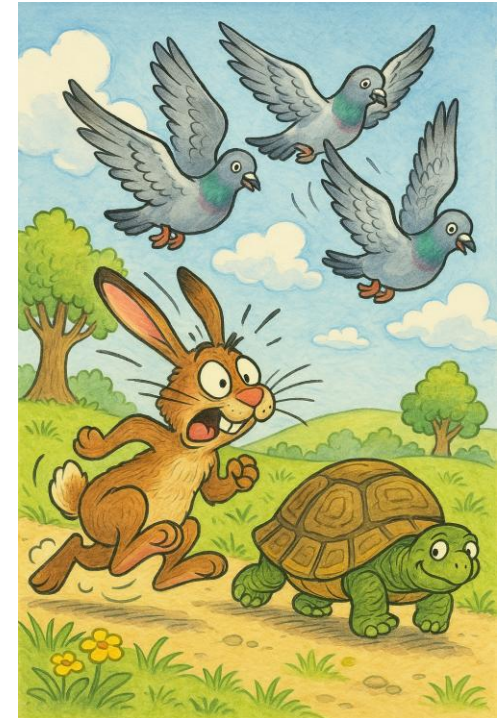
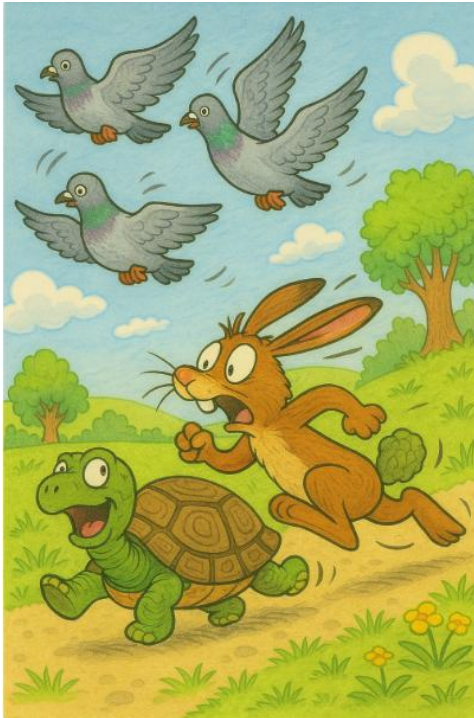


The smartest, the fastest, and the highest-flying a pigeon's (*Columba livia*) perspective on La Fontaine's 'The Hare and the Tortoise' fable.



Didier Marlier





Background

• Everything

Les décennies passées le Descheemaeker Pigeon Center a livré environ 1.700.000 pigeons de par le monde. La famille Descheemaeker et ses collaborateurs sont particulièrement fiers du fait que le Descheemaeker Pigeon Center est la plus ancienne et la plus importante des stations d'élevage de pigeons voyageurs au niveau mondial. Toutes nos activités ont un point commun : le pigeon occupe la place centrale. Cette convergence est importante pour nous. Elle nous permet d'exploiter pleinement notre expérience et notre expertise acquises au fil des ans. Elle permet à nos clients d'en cueillir les fruits.

DESCHEEAEMAECKER

PIGEON CENTER



Adresse : Raymond Delbekestraat 165, 2980
Zoersel

A globalization trend toward Asia & newcomer countries now lead pigeon racing

- Belgium is the place to be.
- Belgian pigeons are renowned for their genetic quality



A few words about FCI

(Fédération Aéronautique Internationale) is a non-profit association, governed by Article 60 and following of the Swiss Civil Code and the pigeon sport in their respective countries and sporting associations representativeness in countries where

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Infos

Le nouveau recordman Gaby Vandenaabeele atteint le montant astronomique de 6.582.500 EURO pour sa vente totale – New Bliksem pigeon le plus cher à 376.000 EURO

15 nov 2018 · 01:00

BE18-6063796
New Kim

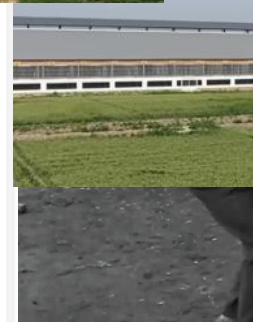
1. Nat. acebird great middle dist. KBDB 2018
2. Nat. Chateauxroux 17,281 birds 2018
12. Nat. Argenton 16,496 birds 2018
21. Nat. Chateauxroux 12,855 birds 2018
G.mother of 'Diamond Kim'
4. Belgian YB PPA ranking 4 National races
Half sister to 'Palme Kim'
1. Nat. Zone Chateauxroux 5,465 birds 2020
Half sister to 'N. Dr. New Kim 779', he bred
3x top 10 pros. & 3x-51-40-40-124. Nat.
Father is from 'Selleke' (son 'Barbara') x
'Marieke' (S. Nat. 14,211 b., sister 'Kim')
Mother is from 'Joan' (13-52, pros.) x
'Dina' (9. Nat. Zone 11,739 b., sister 'Kim')

Original Hok Van De Wouwer



Le pigeon voyageur le plus cher de l'histoire est belge: New Kim vendu 1 600 000 euros !

Le pigeon belge New Kim est devenu le pigeon voyageur le plus cher jamais vendu à travers le monde.





Background and history

- Worldwide and for almost every fanciers
- The same 3 questions

Some data available
piloting, dead reckoning,
true navigation with the
map and compass mode



Very few data available



No data available



Recurring Questions Worldwide

1. Mechanisms of Navigation



2. Role in Competitive Performance



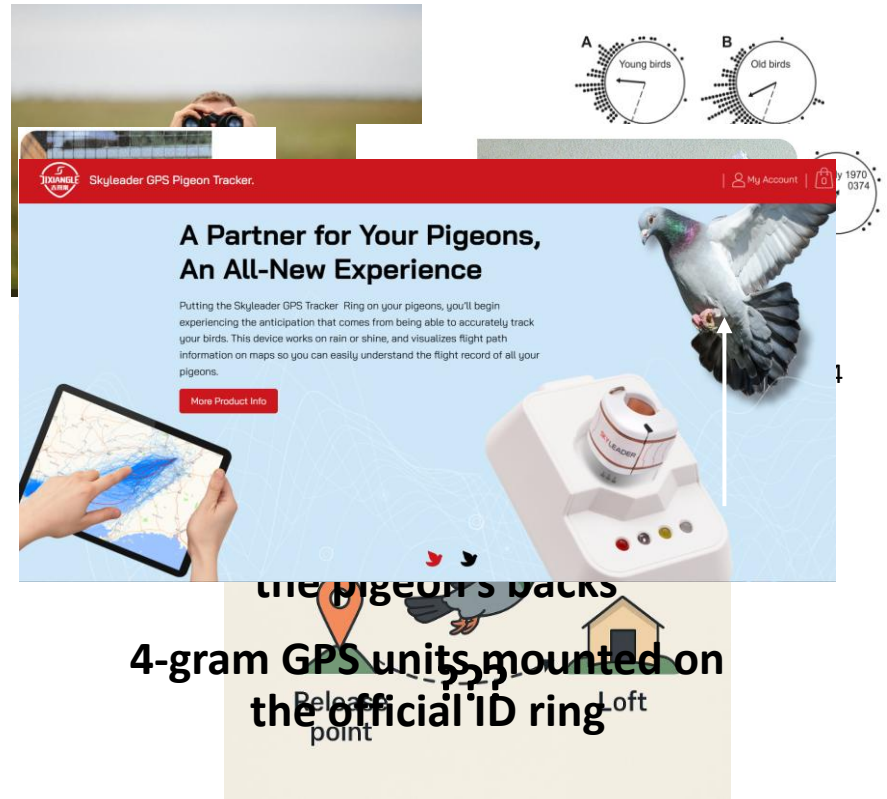
3. Selection Potential





Background and history

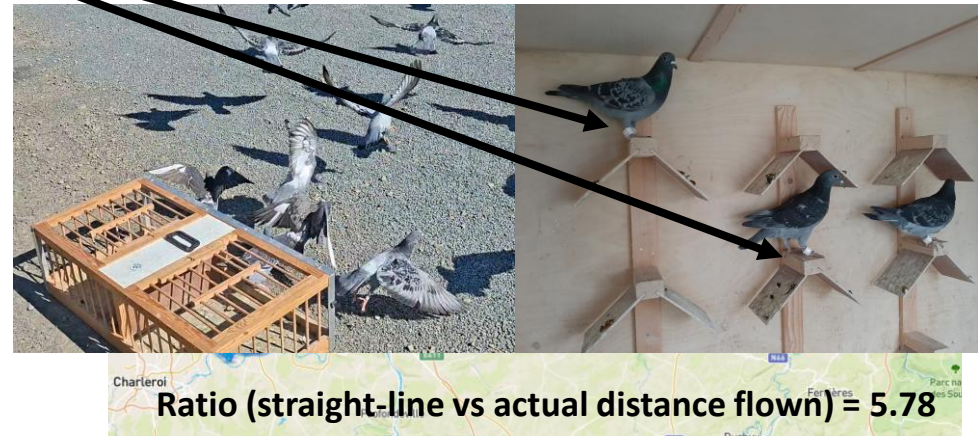
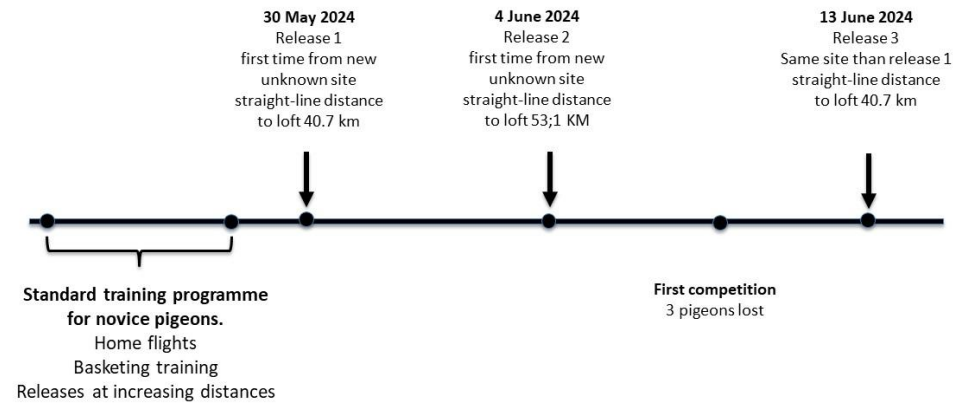
- Progress long blocked by technology
- 1. Early based on vanishing bearings with no in-flight data
- 2. In the early 2000s first GPS too heavy for field use
- 3. Mini-GPS (≈ 2015) enable
 - 1. Field use in training (easier to implement, still challenging)
 - 2. No interference with natural flight
 - 3. Full-flight tracking





Study methodology

- Analysis of a typical early-season training flight
 - **3 releases** with the **same 10 pigeons**
 - **Late-bred birds** (born late the previous year)
 - **Fully muscled** (avoiding growth-related variation)
 - **No prior racing or orientation experience** (orientation- and flight-naïve individuals)
- GPS measurements (30–35 s / fix):
 - Flight **distance**
 - Flight **speed**
 - Flight **duration**
 - Flight **altitude**
 - Geographic **position**
- Arrival rank at the loft
- Distance ratio = true distance / straight-line distance
- Spearman's rank correlation coefficient and Wilcoxon tests

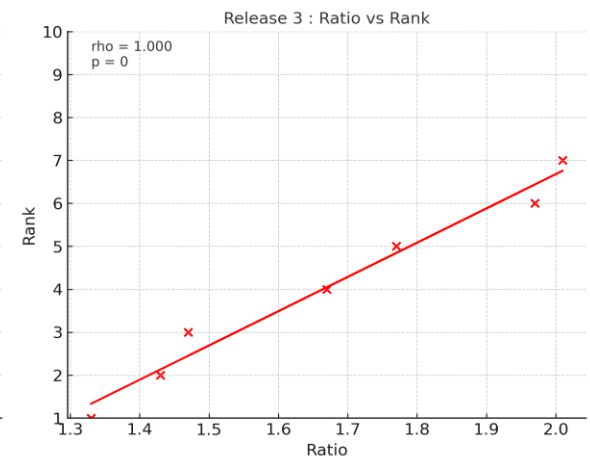
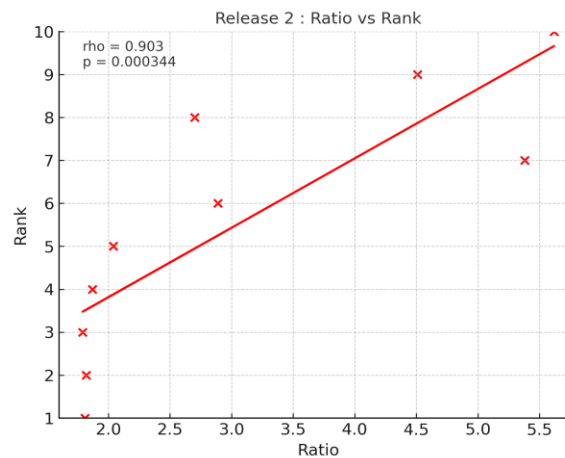
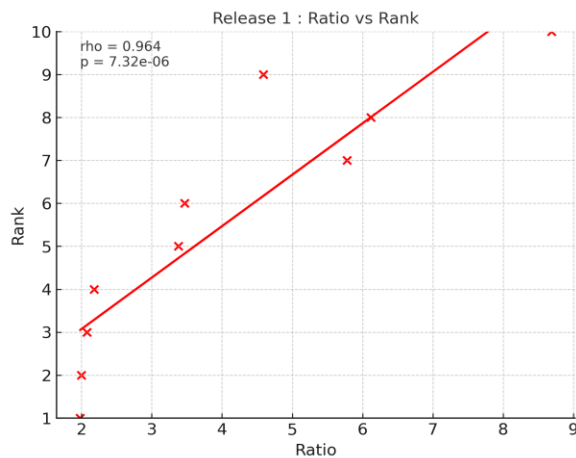




Results:

1) Route efficiency best predicts arrival rank (Brain 1 —Muscle 0)

Pigeon	Arrival Rank 1	Ratio 1	Mean real speed 1 (m/s)	Mean Flight Altitude 1 (m)	Arrival Rank 2	Ratio 2	Mean real speed 2 (m/s)	Mean Flight Altitude 2 (m)	Arrival Rank 3	Ratio 3	Mean real speed 3 (m/s)	Mean Flight Altitude 3 (m)
A	5	3,38	18,8	273	2	1,82	21,2	341	NA	NA	NA	NA
B	2	2,00	19,3	261	5	2,04	18,8	423	NA	NA	NA	NA
C	1	1,98	19,9	264	7	5,38	14,5	305	5	1,77	19,1	396
D	8	6,12	18,4	252	10	5,62	13,6	370	6	1,97	21,5	316
E	9	4,59	18,2	252	4	1,87	20,7	367	NA	NA	NA	NA
F	10	8,69	17,2	225	8	2,70	7,1	325	3	1,47	22,2	275
G	6	3,47	18,9	265	3	1,79	20,6	305	4	1,67	19,1	258
H	7	5,78	18,6	246	6	2,89	19,4	393	7	2,01	21,5	307
J	4	2,18	12,0	222	1	1,81	21,1	339	2	1,43	21,6	309
K	3	2,08	11,7	237	9	4,51	5,2	388	1	1,33	24,0	236

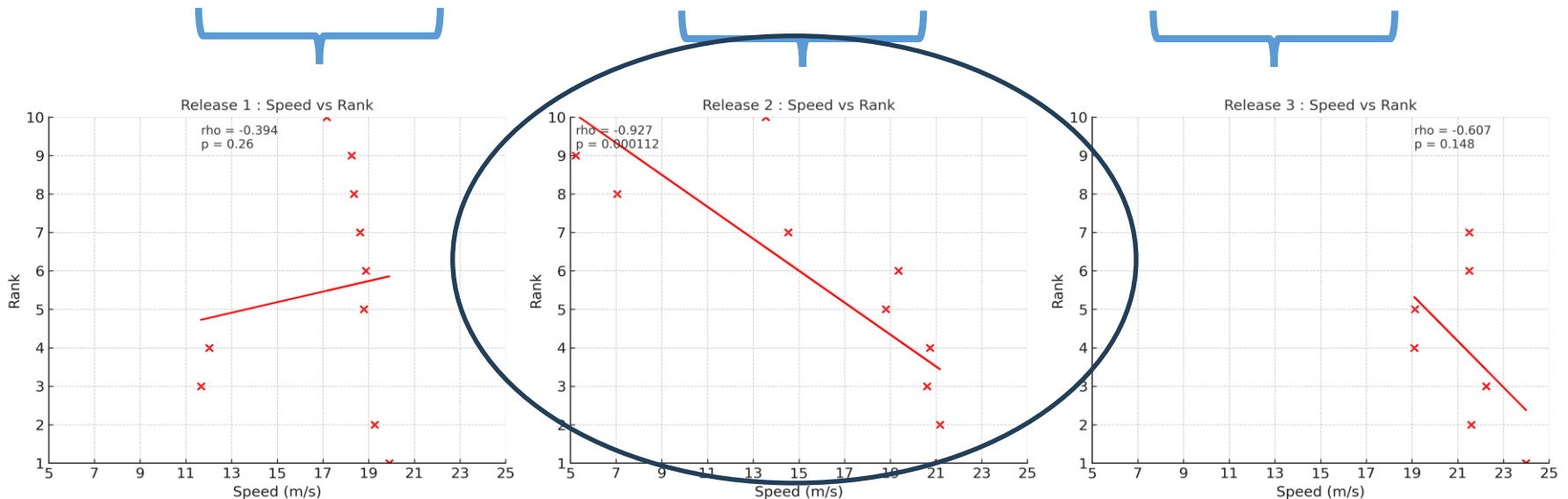




Results:

2) Mean real flight speed poorly (1/3) predicts arrival rank

Pigeon	Arrival Rank 1	Ratio 1	Mean real speed 1 (m/s)	Mean Flight Altitude 1 (m)	Arrival Rank 2	Ratio 2	Mean real speed 2 (m/s)	Mean Flight Altitude 2 (m)	Arrival Rank 3	Ratio 3	Mean real speed 3 (m/s)	Mean Flight Altitude 3 (m)
A	5	3,38	18,8	273	2	1,82	21,2	341	NA	NA	NA	NA
B	2	2,00	19,3	261	5	2,04	18,8	423	NA	NA	NA	NA
C	1	1,98	19,9	264	7	5,38	14,5	305	5	1,77	19,1	396
D	8	6,12	18,4	252	10	5,62	13,6	370	6	1,97	21,5	316
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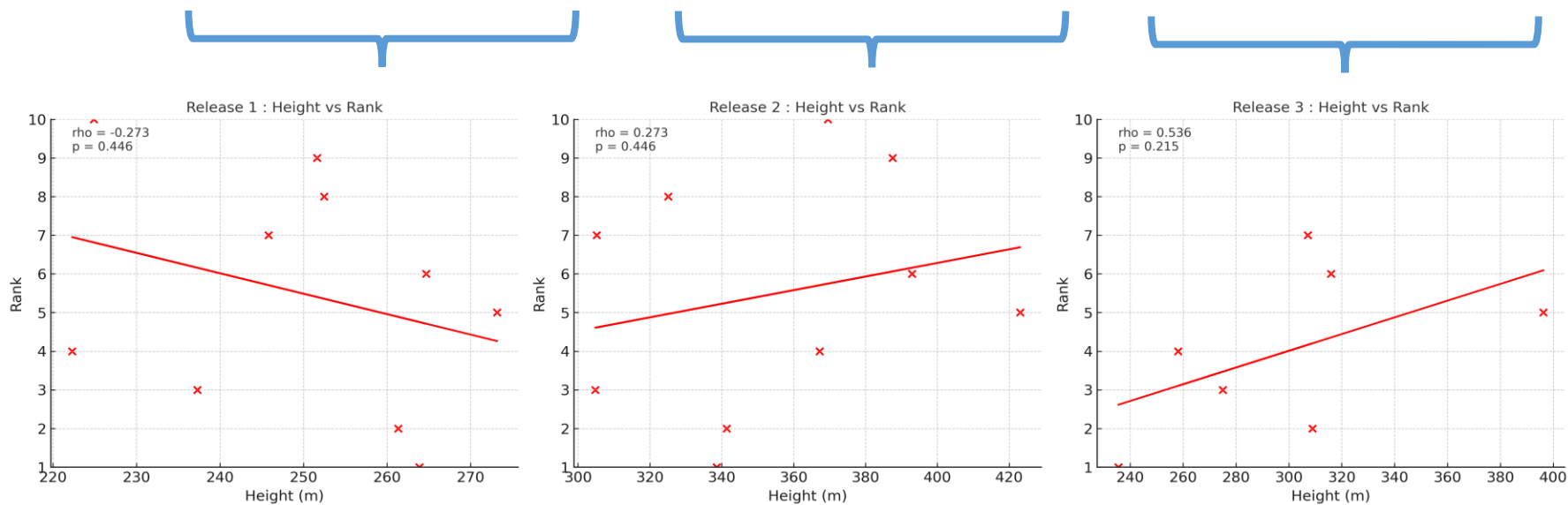




Results:

3) Mean flight altitude shows no link to arrival rank

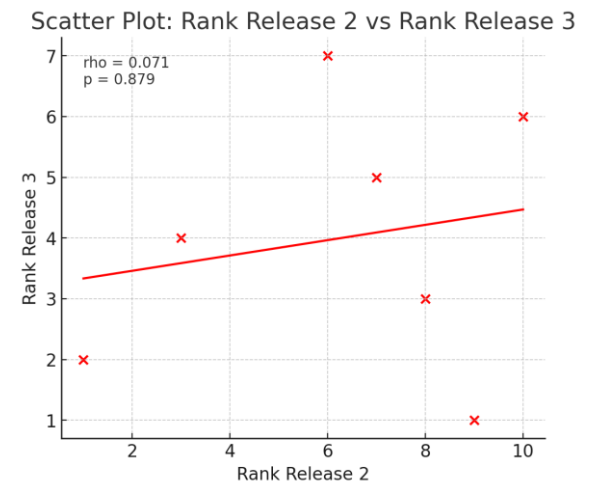
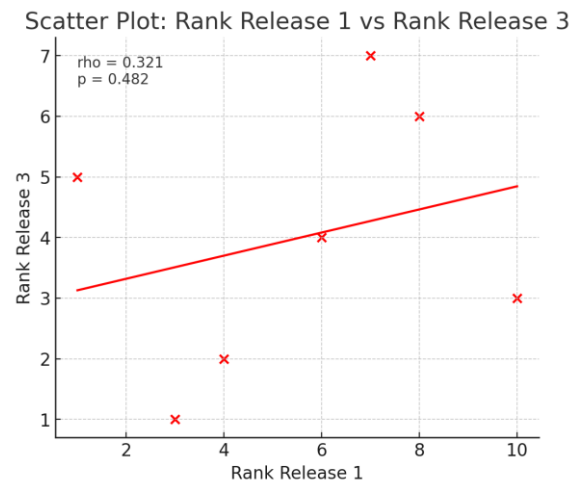
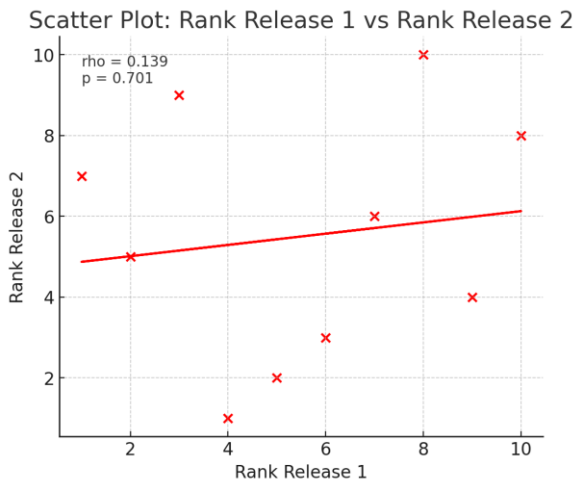
Pigeon	Arrival Rank 1	Ratio 1	Mean real speed 1 (m/s)	Mean Flight Altitude 1 (m)	Arrival Rank 2	Ratio 2	Mean real speed 2 (m/s)	Mean Flight Altitude 2 (m)	Arrival Rank 3	Ratio 3	Mean real speed 3 (m/s)	Mean Flight Altitude 3 (m)
A	5	3,38	18,8	273	2	1,82	21,2	341	NA	NA	NA	NA
B	2	2,00	19,3	261	5	2,04	18,8	423	NA	NA	NA	NA
C	1	1,98	19,9	264	7	5,38	14,5	305	5	1,77	19,1	396
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K	3	2,08	11,7	237	9	4,51	5,2	388	1	1,33	24,0	236





Results

- 4) Arrival ranks are poorly conserved across training
Once the best... but not every day is a winning day

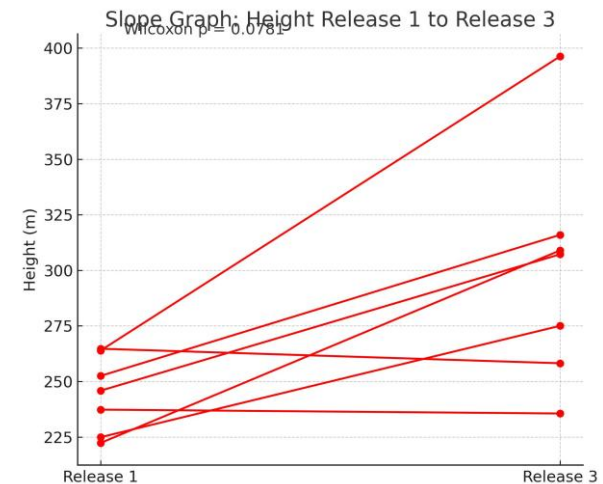
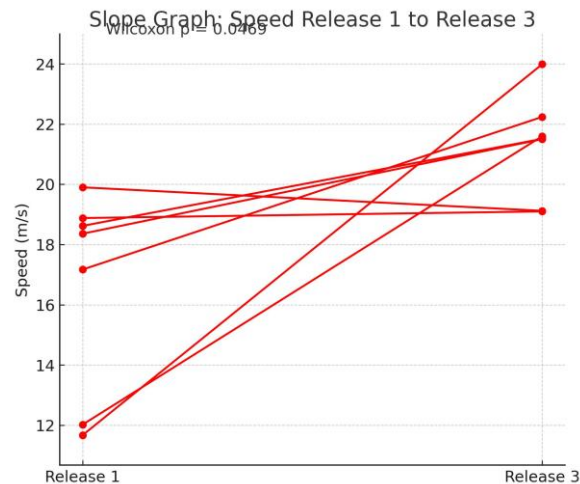
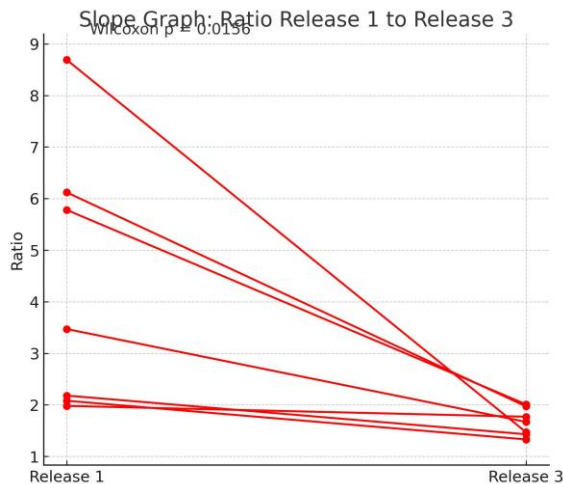




Results

- 5) Pigeons don't just wing it — they learn and get fitter
navigational skills and flight speed increase with experience

Variable	p-value for Wilcoxon paired tests (n = 7)
Distance Ratio	0.0156
Speed (m/s)	0.0469
Altitude (m)	0.0781





Study limitations and future

- 1) Few pigeons (but better than none)
- 2) Correlation $\neq$ Causality
- 3) Tiny distance compared to 100–1200 km in competitions
- 4) GPS altitude = sea level not ground level
- 5) One-loft sample $\rightarrow$ cannot assess group effects (social influences), likely important in races
- 6) Training effects on muscle performance birds $\neq$ mammals; 6 weeks from fully detrained to competition
- 7) Data are only recovered when birds return
 - 1) Losing a pigeon = losing the GPS
 - 2) No way to know what happened — a key piece of information everyone wants
 - 3) Real-time tracking systems are needed (currently under development)



[Video]. YouTube. Pekeng Ilokano: (1,280 km) International Barcelona 2024 - National and International Winners
https://youtu.be/BUwKB_kvQyo



Pigeon Voyageur Vencois. (n.d.). Les rapaces. Pigeonvoyageurvencois.fr.
<https://www.pigeonvoyageurvencois.fr/les-rapaces/>



Take home message

The smartest pigeon wins more often than
the strongest

La Fontaine's tortoise strategy succeeds
pigeons reviewed and approved.

Cleverness beats raw power — even when
the protagonists have wings.

I thank you for your attention

YOU CAN NEVER LOSE A HOMING PIGEON



**IF YOUR HOMING PIGEON DOESN'T COME BACK WHAT
YOU'VE LOST IS A NORMAL PIGEON**



**"My job as a homing pigeon is a lot
easier now I am using the GPS."**

-  The Pifac pigeon loft was donated by the KBDB/RFCB
-  This research was funded by the Veterinary Faculty Special Research Funds: PIGEON-LEAD.
-  A big thank you to Mr. Grégory Maréchal for all his help, care, and hard work with the Pifac pigeons. I really couldn't have done it without you
-  My sincere gratitude goes to Ms. Francine Lageot and Mr. Pierre Parent for their dedicated training of the pigeons and for the confidence they have shown
-  A huge thank you to Mr. Edwin Dawans for the help with the installation of the loft