Woodpigeon’s (Columba palumbus) autumn 2018 migration : a new method to study dynamic patterns along a single crossing route in Central Italy . Focus on “flocking” , “hunting pressure” , “ woddpigeons’ ages “ in a preliminary report .

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Enrico Cavina (*)
as by http://journal.ilcolombaccio.it/flocking-preliminary-report-on-the-autumn-migration-2018-in-italy/
as by http://journal.ilcolombaccio.it/woodpigeons-columba-palumbus-autumn-2018-migration-a-particular-research-on-a-single-corridor-fly-way-crossing-central-italy-and-focus-on-flocking/
and linked Authors and References

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Key words : woodpigeons migration,corridor & para-corridor, observers,waves/peaks,arrivals-transits-departures,flocking,hunting pressure,woodpigeons’ages

ABSTRACT

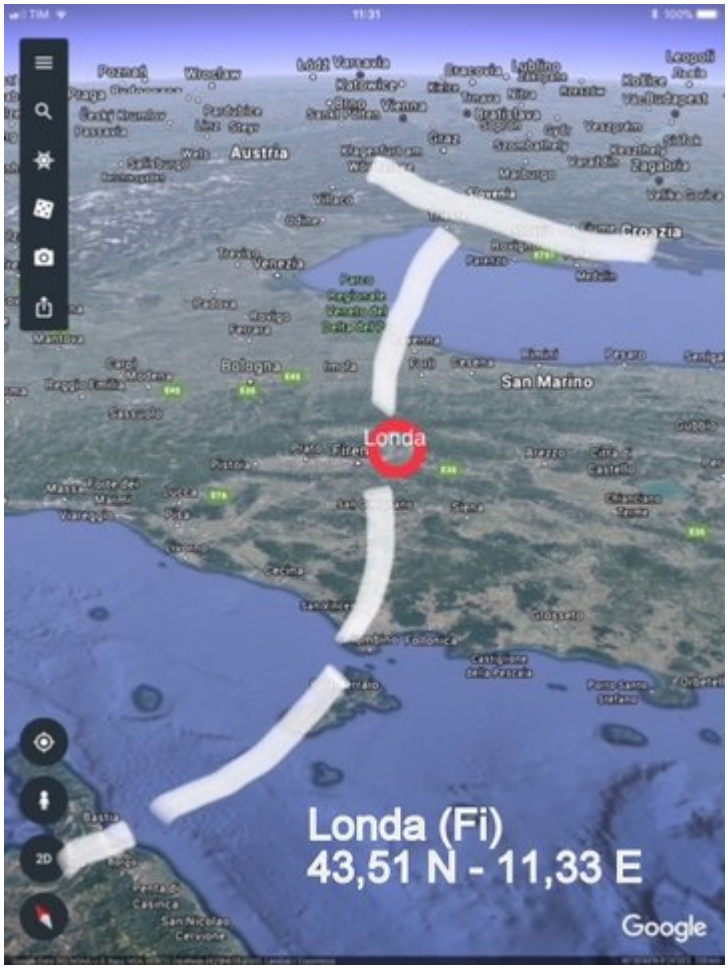
Many methods to study the migrations of birds have been developed along the ancient and modern history of the Ornithology and Ecological Sciences .The ringing ,as historical yet used method, is the most famous , and more recently we find radioisotopic tracking,DNA examination,radar monitoring of migrating mass of birds ,direct following of some migrating birds by light aircrafts ,satellite radiotracking the most recent and promising, and we are in front of the evolution of the nano-thecnology inside the bodies of migrating birds . All these methods present limits of interpretation of the Migration’s phenomenon and behaviours , but their contribute is still basic in the modern knowledge of the birds’ Migration .

The most simple method to observe the migration is that when a man observes the migrating birds in the sky or in stop-over sites , but the limit is the visual field of observation : collecting data of local or extended observations was an evolution of so simple method ,and also it must be considered the base of all traditional migrations’ knowledge of hunters and more recently of organized birdwatchers , developing so important experiences also in the field of the so-called “CitizenScience”.

Collected data of all these methodologies were the base of other sophisticated methods of analysis by theorical (statistics) and practical (laboratory and experiments) study’s evolution . Despite so impressive increasing of high qualified experiences , the birds’ Migration is still full of undiscovered misteries and questions without answers. Collecting so many data by records for many birds’ species and in many different timing and locations , often not well coordinated , it seems many times too far from the real behaviours ,choises and decision making of birds

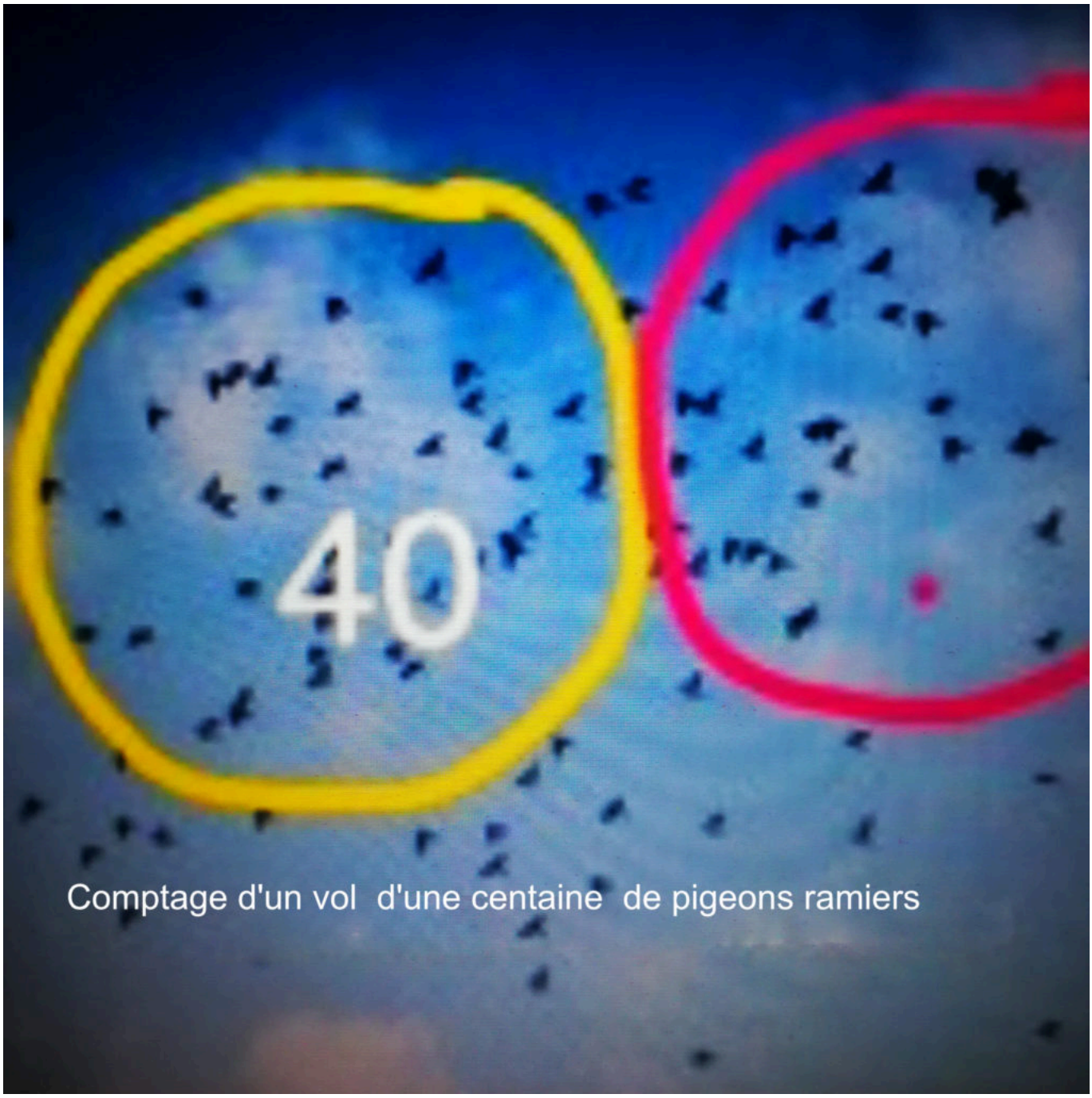
before,during,after the migrations. But visual observation,recording of numbers of birds and flocks, and their instant and long- term behaviours in front of habitat and climatologic changes , seems the most “live” method in real time .
The opportunity to collect and study data , recorded by very expert and traditional observers/hunters along a single narrow long (300 Km) migration’s corridor/route that crosses Italy by Woodpigeons as short-medium-long distance migrators ,seemed to us a new method powered by the solution of continuity following the migration along their full crossing way and autumn timing .
In the present study on a migratory corridor/route (long 300 Km-large 15-25 Km) the observations of recorded birds (woodpigeon- Columba palumbus) were 496.389 in 3.975 flocks , but considering an enlarged area in Central Tuscany (para-corridor) were 607.749 in 5.805 flocks (1st October-15 November 2018) . We have also considered detailed analysis during the two “waves/peaks” of the seasonal migration . 41 experts Observers has registered detailed data hour by hour , day by day . In the present preliminary draft/report we have consideterd 3 topics:
– Flocking : the sizes of flocks changes during the fly crossing Central Italy in the corridor “Mesola forest – Elba island” as by a sequence fom average values of 306 birds (Mesola) to 46 (Central Tuscany) and then 81 and finally 156 (increasing 239{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) in Elba island .
– Hunting pressure : it results 0,52 {a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} (numbers of killed birds 3.201)
– Age : in the first period (1st Oct.-17 Oct)of the autumn migration 1358 YOUNG birds are 55,96{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} , and in the second period 1843 birds are 50,24{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a

88d1abe5} .
Many detailed comments are reported in Italian Text- please use Translators in your Language.
Please take note the the present preliminary report is simply a DRAFT
. The results of the present study draft/preliminary report wll be basic of future statistical study (work in progress)



INTRODUCTION
Many methods to study the migrations of birds have been developed along the ancient and modern history of the Ornithology
and Ecological Sciences .
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method, is the most famous , and more recently we find radioisotopic tracking,DNA examination,radar monitoring of migrating mass of birds ,direct following of some migrating birds by
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their full crossing way and autumn timing .

MATERIALS & METHODS – RESULTS – DISCUSSION

In the present study on a migratory corridor/route (long 300 Km-large 15-25 Km) the observations of recorded birds

(woodpigeon- Columba palumbus) were 496.389 in 3.975 flocks , but considering an enlarged area in Central Tuscany (para-corridor)



were 607.749 in 5.805 flocks (1st October-15 November 2018) . We have also considered detailed analysis during the two “waves/peaks” of the seasonal migration . 41 experts Observers has registered detailed data hour by hour , day by day . In the present preliminary draft/report we have consideterd 3 topics:

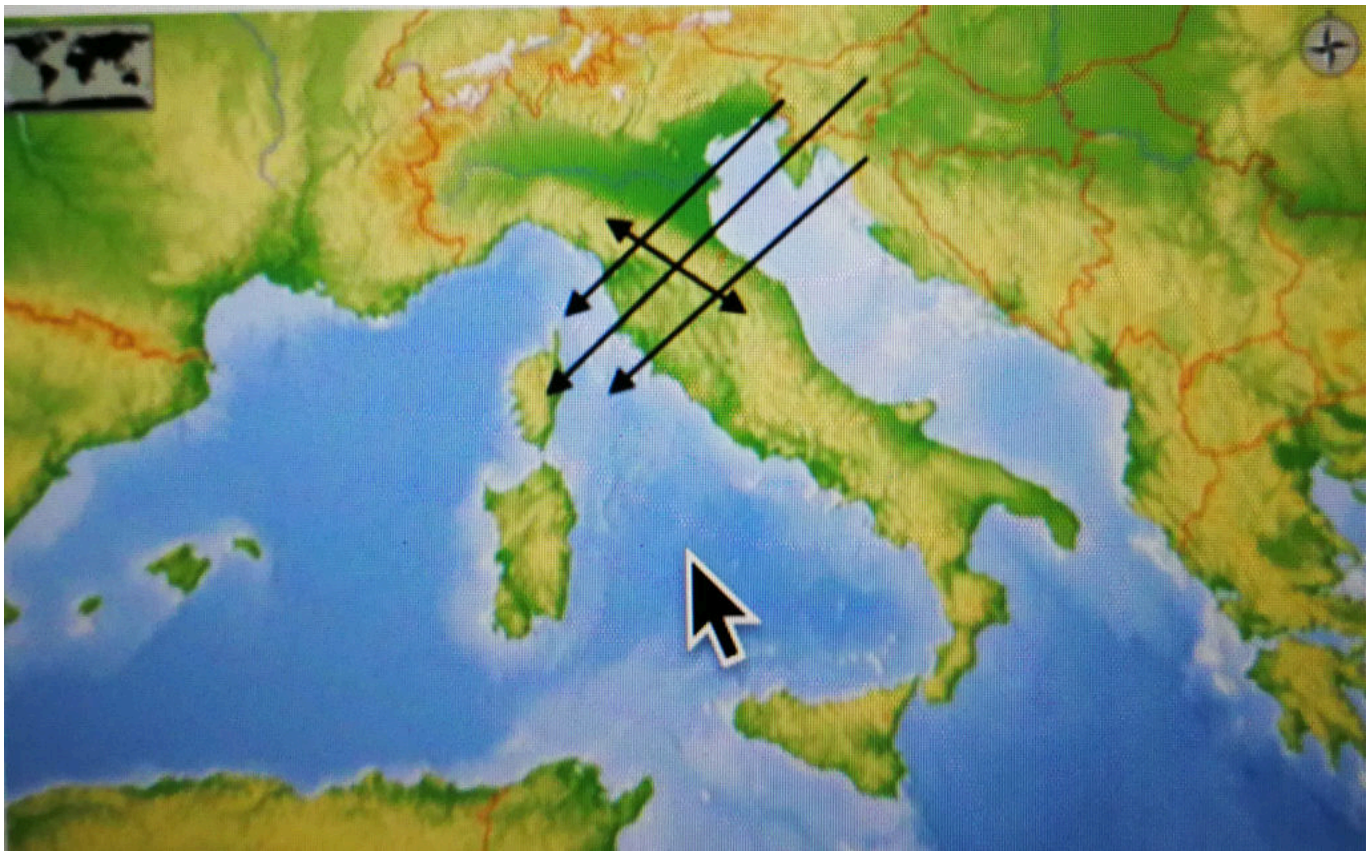
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Better presenting basic material: in the present study on a migratory corridor/route (long 300 Km-large 15-25 Km) we must specify that the real amount of recording days was 34 days respect 46 of the period (1st Oct.-15th Nov.) depending on the
banned hunting Tuesday and Friday of every week in Italy ,and in
various phases the monitoring was irregular in the singleobservation's sites . However the detailed overview of the migratory
season was exhaustive . Particularly significative was the analysis
of 2 wave/peaks (4+3 days) as in the next analysis
The object of the present study is as following . A geographic /migration route (300
Km) of Woodpigeons (wp) is extended EAST (NE) to WEST (SW) through Italian
peninsula
– from Adriatic coast , Po river Delta and Mesola forest (Lat. 44°51
07N-Long.12°14 42 E) – main stop-over site

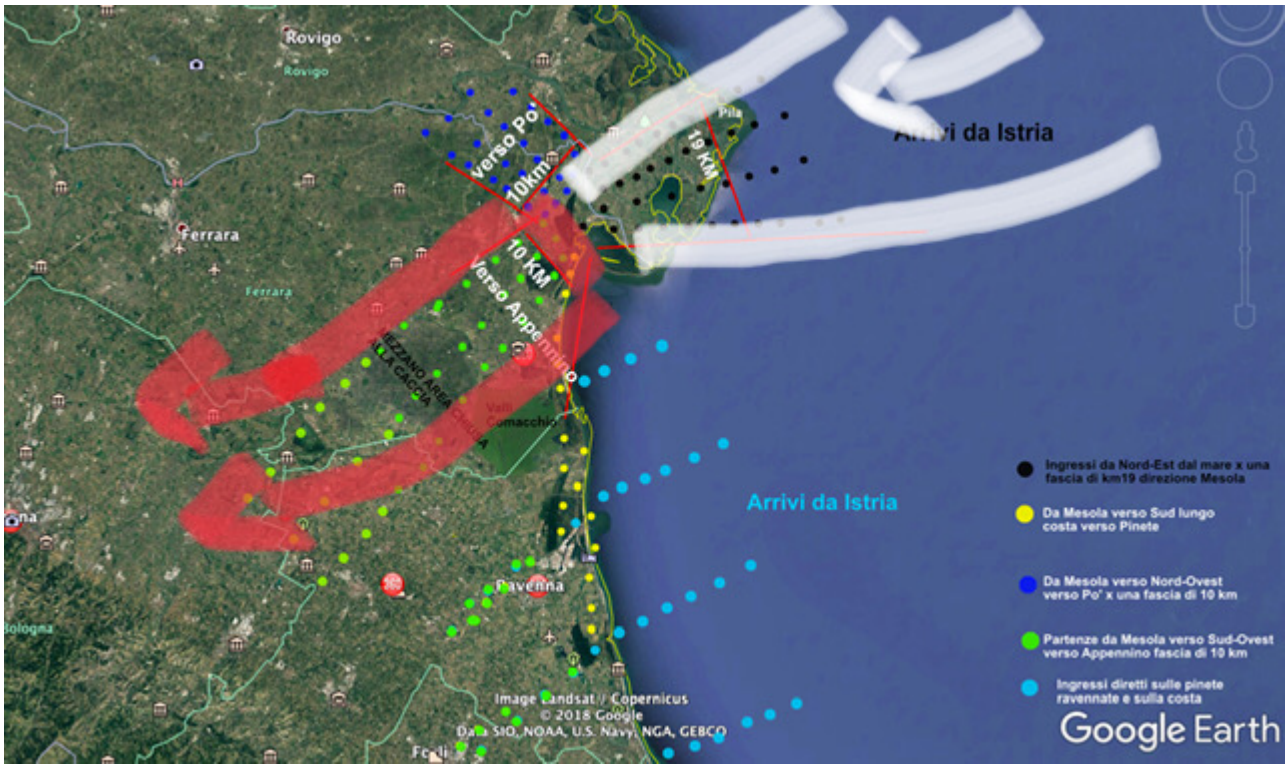
– to Tyrrenian coast , Elba island –main final departure transit

site crossing Appenine mountains where on the west side (Tuscany region)
we have the crucial transit point of Mugello area (Borgo S.Lorenzo 43°57
19N-11°23 07E & Londa 43°86 19N- 11°57 01E – distance between them
15 Km). The Appennine corridor from East side (5 Observers) to West side
(2 Observer) is large 25 Km East – 15 Km West ,that is 3,12{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of total length
of the crossing peninsular line (800 Km) including many other
corridors/routes crossing Italy from North (Alps) to South (Gargano
peninsula-Puglia Region) . On the Route/corridor we have distances : -total
from Po river/Mesola to Elba island 294 Km (300 Km) – first segment from
Mesola (exit border) to Mugello area 98,73 Km (100 Km) – second segment
from Mugello to Elba island 160,70 Km (160 Km)



On the first segment we
have – (A)Mesola –Appennine East area 3+5 Observers (discontinuous
recording) – (B)Mugello area 1+1 Observers(continuous recording) –
(C)Central and coastal Tuscany 2 Observers (continuous recording) –
(D)Elba island 2+1 Observers (continuous recording) Latitude/Longitude as
(A) 44°85 23N-12°19 42E –(B) 44°56 47N-12°49 51E , 44°13 59N-11°54
00E,44°09 18N-11°13 28E,44°10 46N-11°39 41E,44°10 31N-11°29 12E ;
(B) 43°57 19N-11°23 07E , 43°86 19N-11°57 01E ; (C) 43°63 28N-11°41
33E ,43°10N- 10°70E ; (D) 42°49 00N-10°20 69E The first step of the
present study is on the first segment of the corridor from Adriatic Mesola
area to the East crossing point of Mugello area (west

Appenine side – 98,73
Km).
On the first segment we have recorded data and details from 1st October to 15
November (46 days): unfortunatly the hunting/observation activities are stopped in
Italy every Tuesday and Friday , so we have a gap of 13 days/46 days (1st Oct.-
15th Nov) ,and so it is a damage to obtain a continuous recording and connected
analysis ,that is limited on 33 days. Better organization for a continuous recording
seems impossible at the present time .
The total raw numbers collected on the first segment show : - Adriatic coast (
arrivals from Croatia) -7/46-33 days- 2 Observers 59 flocks -23400 wp -Mesola



west sides (departures to Appenine) -15/46 -4 Observers 156 flocks- 33640 wp
The total of birds recorded in 278 flocks is 72.020 woodpigeons (wp) enclosed
14.980 wp in 63 “returns ‘ flocks “ (mostly during afternoon)

that is expression of
the local feeding daily movements (intensive agriculture fields aound Mesola
forest) during stop-over days. We must consider that the recording sea-coast site
was managed by ducks’hunter (just on the line sea-coast)who are present only
until 12 pm ,and discontinuously depending on weather conditions . So , this
recording method should be considered only as indicative for some days .On the
other hand we know that many flocks arrive from Istria-Balkans during the nights
particularly with good Moon light, and some times (day or night) they can arrive (
tail winds) at very high fly altitude , sometimes without stopping in the area , and
continue directly to continental area .
It is basic to know that Mesola forest (835,70 ha) receives (mostly between 6 – 24
October) 100.000-300.000 woodpigeons in stop.over ready to continue the
Migration –also after Zugunrhue periods- to West-South West .





The few days of observation recording (7 days) on the “arrivals’points” must

be considered only as
indicative .
The few days (15/46) on the “Mesola departures’ points” can be considered more
significative , as we consider the incoming analysis of Peaks/Waves clearly
connected with the Mugello Appenine data (transits after take-off from Mesola) .
Continuing the analysis of the first route’s segment we go on Mugello area , crucial
transit/corossing point , 193-226 m at sea-level,interested by flies/flocks after
crossed the ridges of Appenine mountains (700-1000 m. altitudes) distant from
Mesola 100 Km (around 1h 30’ – 2 h of fly) . One + one (2) very old experts , and
23/46 – 33 days of observations on two traditional sites (distance between them 15
Km) :
– B.go S.Lorenzo 43°57 19N-11°23 07E , altitude 193 m. – at North
– Londa 43°86 19N-11°57 01E – altitude 226 m.)- at South Total woodpigeons



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recorded on the Mugello area : 18. 051 in 367 flocks (average size 32 birds/flock)
North (B.go S.Lorenzo) 8266 wp in 170 flocks (average size 49/1 flock) that is 45,79{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of total Mugello area South (Londa) 9785 wp in 197 flocks (average size 44/1 flock) tah is 54,21 {a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of total Mugello area
The flocks observed in North cannot transit on the South .
Comparing Mugello area’s transits with Mesola departures we can underline :
Mugello vs total Mesola area (arrival/departure) : 24,03{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} (18.051wp compared

75.040 wp) Mugello vs Mesola departure sites : 31,04 {a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} (18.051 wp compared
57.040 wp) It seems to say :
– 31 {a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of the birds departed from Mesola fly on the corridor (large 15
Km) Mesola-Elba
– 69 {a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of the birds departed from Mesola fly on other, parallel or not ,
corridors enlarging the crossing area of Appennine (North and South) but
also directly on North to the Po river’s route to Liguria,pre-Marittime
Alps,France. It is interesting to underline : the sizes of the single flocks
reduce themselves during the way from East to West : -396 birds (average
1 flock) arriving in Mesola -106 birds (average 1 flock) departing from
Mesola -48 birds (1 flock) crossing the mountains (Mugello) by a sequential
decreasing
-45,70{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} ,
-69,23{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} . During stop-over the flocks reduce their
sizes
-40,15{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} (from 396 birds/1 flock to 237 birds/1 flock)) for daily feeding
movements around the Mesola forest on agriculture fields . A part the
comparing Mesola area (arrival/departure area) and Mugello

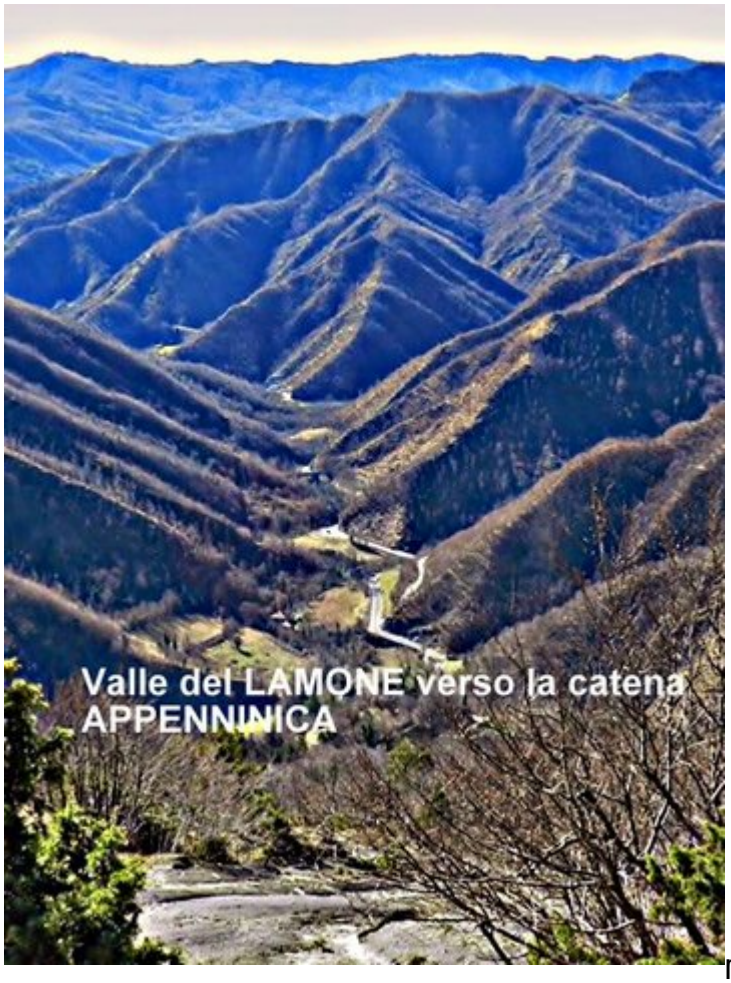
area (terminal
area of the first segment-98,73 Km- in Appennine crossing) it seems more
important and significative comparing the line (25 Km) of 5 Observers on the
East side of Appenine mountains (25 Km from 44°56 47N-12°49 51E to
44°10 31N-11°29 12E –altitude 400-600 m) with the line arrivals/transits in
Mugello area (15 Km from 43°57 19N-11°23 07E to 43°86 19N-11°57 01E
-altitude 300-400m) after 20-30 Km flight over the Appenine crestsmountains (800-1200 m. altitude) .Along this line of 25 Km we found
rivers'valleys and valleys (more 20) available for Air Pressure corridors
useful for flying without turbolences or against-winds . The width's difference
from 25 Km line (5 observers at East Appennine) and 15 Km (2 Observers
at West Appennine) seems very important considering the scattering of the
migrating birds'mass arriving from Mesola and Adriatic coast in front and
through valleys and mountains . Comparing the few days and few observers
on the Mesola area we must consider the Mesola data only as indicative and
not documentative : 41.660 woodpigeons in 152 flocks were counted
departing from Mesola but this amount is dramatically in defect respect the
total amount of woodpigeons in Mesola-stop-over during the periods . On
the East line (25 Km -5 Observers) 128.783 woodpigeons in 1205 flocks
arrive from Mesola and Adriatic coasts by an

{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} increasing of 2019,1{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}
respect the only indicative number of 41.660 departed from Mesola .The
records of the 5 Observers along hills/mountains of East Appennine are very
detailed and continuos ,and it’s important underline that the birds counted in
a site cannot be counted in one of the other 4 sites , duplication of recording
is impossible .
EAST side of Appenine mountains – Lamone valley WEST side of Appennine mountains at horizon :

Woodpigeons arriving from Mesola-Adriatic coasts fly on the valleys (as Lamone) to the crests of Appenine mountains at horizon (EAST) ,overcoming arrive on the Mugello valley (fog) from the crests (horizon) at WEST side Appennine

On the WEST side of Appennine mountains (Mugello area – 2 Observers
–corridor large 15 Km , 10 less than East side large 25 Km) the two very expert
Observers/Hunters has recorded (visual field) on the same total periods 18.052
woodpigeons that is 14,78{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} respect 128.783 recorded by 5 Observers on the
EAST side and 43,33{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} respect 41660 departed fom Mesola (number at fault).
Trying a “reading” of this concentration(East)/ scattering /West) of migrating
birds/flocks we can say that the mass arriving on the East

line(5 Observers) is so
big depending on flocks not recorded from Mesola and on more flocks arrived from
Adriatic sea/coasts . In front of the mountains and along valleys the big flocks
become scattered and only 14,78 {a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} continues inside our corridor (15 Km Mugello
area) . Other 85 {a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} overcomes the Appennine crests (pass,valleys)



more North or
South of the Mugello corridor , as confirmed by Forum,chats,direct telephone
connections between hunters in Tuscany region and by other investigation
methods (MCL,MSM as by bibliography) . It is confirmed also by an other sequential
data : the flocks arriving in Mesola have a size of 396

birds/1 flock (on Adriatic
coast arriving from Balkans) ,decreasing 106/1 departing from Mesola,remaining
106/1 at East Appennine ,but strongly decreasing at 48/1 at West Mugello area ,
as clear result of the scattering dispersion during crossing the Appenine . These
data will be investigated comparing meteo- data on the area (winds,Air Pressure
,isobaric corridors) .(work in progress)

As repeatedly stated – and not least on the report-publication "Poggibonsi 2019: Colombaccio Italia Project" – Coordinator Rinaldo Bucchi – based on booklets and direct contributions selected (41), all the progress of the migration is in advanced analysis autumn on a narrow, very restricted "migration corridor" (10-25 km wide) for a preferential "route" that runs from the Po Delta (Mesola) to the Island of Elba, crossing from North East to South West the whole Central Italy (Emilia-Romagna and Tuscany).
The data collected by Hunters / Detectors selected also in the context of PCI, MSM, MCL should allow (work in progress) to analyze details of the Migration concerning various aspects of the Colombaccio eco-migration system, and here in preview we report those concerning the numerical composition of flocks in migration (flocking) and subsequently the analysis of the hunting effect and the age of the Colombacci slaughtered and examined directly by the Detectors.
.
The method (a single "corridor") never applied to large numbers and in sequence of seasonal monitoring in Ornithological Research, is innovative and intriguing: it is like trying to understand what it does and how it moves in a month and a half (1 October-15 November) all the migrating mass (composed of populations with different origins unknown and with various waves) that arrives at a specific point of arrival in the Adriatic (Po Delta-Mesola) and – on a

preferential way – then starts to cross the whole Center Italy up to a further precise starting point (Elba Island) for the further trans-Tyrrhenian-Mediterranean crossing.
This is not the place to describe and discuss the methodological-scientific details of this “ongoing” research, but some data are already very significant and can interest many enthusiasts as well as reward the selected Observer-Detectors who participated in the data collection in analysis.
The extraction work (careful meticulous reading of the Booklets of the Detectors), archiving, systematization and schematization of these data has been and is long, demanding and difficult, but some preliminary results – for now here focused on “flocking” – can be offered to discussion, perhaps itself preliminary to more demanding scientific papers.
496.389 Colombacci in 3975 flights of flocks, all specifically observed in the geographical Corridor in question from Mesola to Elba, all with the same counting method.
It should be well considered that the Mesola-Elba Corridor (CME) is very narrow (width 10-25 km) and if compared to all the peninsular length (especially the Apennine chain) that receives migratory transit, it is quantified by minimum percentage values on 2-3{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of all said length from North to South: however, it offers the advantage of being able to follow the Migration with the data recorded almost “in direct chronological order” every hour and every day on a very precise preferential “route”.
The analysis has developed – and will develop further (work in progress) – on 5 recording sub-segments included in 2 basic segments (East-West):
 2 sub-segments in the eastern pre-Apennine area (Mesola – Emilia Romagna);
 3 sub-segments in the western post-Apennine area (Mugello-central and coastal Tuscany-Elba island).
On the pre-Apennine route (2 sub-segments) 209.319 woodpigeons were recorded in 1371 flights.

On the post-Apennine route (3 sub-segments) 287.319 woodpigeons were recorded in 2604 flights.
MUGELLO area
On the pre-Apennine route and in the first post-Apennine sub-segment (Mugello area) there was no possibility of counting duplication.
On the post-Apennine route (central and coastal Tuscany), on the other hand, this possibility of duplication existed, with the exception of the specific transit on the Island of Elba where a precise “skimming of the duplication” was carried out (Renato Cecchini) thus excluding counting duplications on three directions in arrival-transit-departure on the island.
The restricted geographic Mesola-Elba corridor (width 10-25 km) remains the basis of the Work, it was considered appropriate to consider in the “appendix” also the Tuscan areas “para-corridor”, neighboring that is to the West-East of the corridor itself in 11 sites selected for observation, resulting in the same important stop-over areas after crossing the Apennine ridges and relative “fan” dispersion over Tuscany, before the whole “migrating mass” projected towards the crossing of the Tyrrhenian Sea was regrouped.
It must be clear that this extension of the count of 11 “para-corridor” sites – however considered to be affected by possible duplication of the count – offers criticism and interpretative speculation of possible “variables”, such as eg. from more numerous arrivals than the “Mugello gate”, features of the stop-over areas, local orography, geographical memory, orographic meteorology, etc. . We thought this “enlargement para-corridor” correct, statistically abusive but still complementary to a correct “reading” of Migration.
This “para-corridor enlargement” leads to an increase in woodpigeons and registered flights: respectively 607.749 and 5.805.
The “reading” of the global Migration on “corridor” and “para-corridor” and both together, also makes use of detailed analyzes in the 2 Waves / Peaks identified in the 2018 season (10-15 October // 20-22 October) according to the parameters

expressed in our previous Basic work “The general pattern of seasonal dynamics of the Autumn migration of the wood pigeon (Columba palumbus) in Italy” (published in The Ring 40,10.1515-2018).
The Waves/Peaks 2018 data on the “corridor” and “corridor + para-corridor”, for 5 + 3 = 8 days. (out of 46 days of the period – to exclude days of hunting silence) so they are quantified:
– 273,000 woodpigeonsin 2044 flights (8-day wave / peak values corresponding respectively to 58.53{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} and 51.42{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of the entire Migration in a month and a half) in the exclusive “corridor”.
 363.498 woodpigeons in 3339 flights (59.80{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} and 56.54{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of all Migration) in “corridor + para-corridor”.

Overall, the percentages of woodpigeons migrated through Central Italy indicate that almost 60{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of the migrating mass in the autumn of 2018 was concentrated (days recorded) in the eight days of the two Waves / Peaks on the total of the 46 days of the period (1 October -15 November). Unfortunately, we must once again point out that the lack of reliable data on the ORIGINS of the various POPULATIONS, which nest in the Western Palearctic and beyond the Ural mountains (Russia, Scandinavia, Belarus, North-Eastern Europe, the Carpathian and Balkan area), does not allow to identify the dynamics of migratory movements from these differentiated areas of origin. Because of this basic deficit it is impossible to analyze specific aspects of migratory ecology, such as dependence on the climatic and environmental temporal evolution, dynamics of “decision

making” of the moment of migratory inactivity, choice of the main migratory fly-way, effects of clustering of different populations in stop-over areas, various weather and weather conditions determining the movements from the areas of origin, permanent or otherwise changes in migratory behavior (short, medium, long distance migratory. tendency to become sedentary, urbanization). under the banner of the main character of the Species and that is the behavioral “flexibility” and all this will be able to find answers only when researches will be carried out with Radioisotopes, study of the territorial DNA, collateral indications from the satellite Radiotracking.

Flocking



All that has been exposed so far already allows us to document (and we believe has never been done, as is clear from our careful research in Literature) a research topic (“flocking”) that is particularly interesting and still not very thorough, which is that of numerical number of migrating flocks, as modified during the “arrival-transit-stop-over-departure”

migration route.
This group phenomenology, which is an important aspect of the study of the c.d. Sensory and behavioral ecology of migratory animal species, is well documented in the own migratory characteristics of the woodpigeon (Columba palumbus) during the crossing of our peninsula and our data wants to represent itself in terms of unexceptionable evidence based documentation.
Given the numerical basis of “how many pigeons estimated in a flock” in relation to “how many pigeons in total we have observed” we obtain the size media of the flock / flocks in various spatial and temporal conditions.
In our preliminary analysis on a narrow corridor (space) in the days of migration (time) of a single season we were able to extract the following data:
 A value (“average”) of 306.23 per flock-woodpigeons on arrival on the Adriatic coast (Mesola);
 A value of 128.45 immediately before the devaluation of the Apennines, therefore an initial fragmentation of the herds;
 A value of 46.29 immediately after the devaluation of the Apennines, thus a further dramatic fragmentation of the herds;
 A value of 81.60 in the phase of dispersion (Tuscany) of transit / stop-over up to the coasts, therefore a gradual reunification in packs gradually larger remaining in the space “corridor”;
 A value of 103.57 if we add the “para-corridor” areas in Tuscany, therefore an effect of further agglomeration in the stop-over areas, although brief;
 A value of 156.12 during the transit / departure phase of the Island of Elba, therefore a definitive re-consolidation of ever larger flocks reaching the Tyrrhenian Sea.
The sequence of “averages” (woodpigeons number /fock) from Mesola to Elba is therefore: 306.23 – 128.45 (decrease of 58.2{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) – 46.29 (further decrease Mugello of 64.1{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) – 81 , 60 (increase

76.1{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) – 103.57 (further increase of 27.2{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) – 156.12 (from the minimum of 46.29 average in Mugello the increase is 239.1{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5})
Quantifying the values of “decrease / increase” on the complete route as a percentage, we obtain a decrease of 85{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} from Mesola to Mugello, and subsequently an increase of 239{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} at the start from Elba.
For the right “reading” of these few but certain data on “flocking-deflocking-reflocking” in a narrow trans-peninsular corridor in Italy, in a season carefully monitored by 41 detectors, we cannot exclude that it will require a critical deepening in dependence of contingent “variables”.
However this investigation of ours – presented here in preview – with a very narrow observation focus (2-3{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of the whole transverse peninsular journey) documents and clearly indicates that the woodpigeons arrive with larger flocks after crossing the Adriatic Sea, yes they gradually break up into the orographic path and during short stop-overs, they tend to re-compact into increasingly large herds to cross the Tyrrhenian Sea and more broadly the Mediterranean.
Particularly significant for these fluctuations in the size of flocks, is the highlighting in detail of what happened in some 2018 days of waves/peaks when the intensity of the migration stimulus is maximum (furor).
On the first day of the October 10 wave (18.230) the average size of the flocks was represented in this sequence:
area Mesola 385 birds, pre-Apennine area 79, post-Apennine area Mesola 30, corridor Tuscan 57, para-corridor 44, Elba 128. (EAST-WEST 385-79-30-57-44-128) (first decrease -92.2{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a

88d1abe5} – further increase 326.7{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5})
On October 13 (26,055) the sequence is: 712-42 (decrease -94.1{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) -38-46-60-98 (increase 157.9{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5})
October 14 (41.933): Mugello 37-Toscana Centr. 92-58 – Elba 121 (increase 227{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5})
October 15 (63.165): Tuscan Corridor 76, para-Corridor 31 – Elba 145 (increase 90.8{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5})
In the second wave on October 20 (84.822): Mugello 67 – Tuscany center 137-51 – Elba 223 (increase 232.8{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5})
This documentation includes the phenomenon of kilometric “stripes” observed by us in Italy (see mass take-offs from Mesola, S. Rossore – Apennine signposts)
but also in Falsterbo (Sweden), Portland (UK Channel), Pyrenees (France-Spain) especially in offshore routes. We recall that the phenomenon was recurrent in the migrations of the traveling Dove (Passenger) now extinct in North America.



The reasons for this “social” behavior are various, are

configured for an interpretative challenge, remain in the mystery and fall within the ethology-ecology of the associative life of an Avian species also during migration, as emerges from some important not numerous Works to which we refer the reader to the bibliography and web-bibliography.
This “preview” just wants to be a reminder of the need to deepen the studies on the ORIGINS of woodpigeons and connected different populations with probable different associative behaviors before, during, after Migration.
The interpretative study of “flocking” understood as “animal associative dynamism” requires – for those interested in deepening – a specific additional NOTE to which we refer (see below with relative Bibliography as by http://journal.ilcolombaccio.it/flocking-preliminary-report-on-the-autumn-migration-2018-in-italy/ (Italian language text – NOTE)
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EFFECT “HUNTING PRESSURE ”

Does hunting as such (predation) negatively affect the “status” or conservation of the Columba palumbus species in Italy?
The data collected in this research clearly indicate “NO” (incidence 0.52{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) and are in line with other numerous statistical findings reported in the Works published or quoted in IJWR. Otherwise, paradoxically, it is also possible to state that the Hunt affects too little with respect to the generalized increase in the populations of the Western Palearctic and beyond, in the context of environmental changes mostly related to the current phase of human settlement in many European areas. In a supposed projection of “centuries” we must somehow recall that in a recent past (1800-1900) in the presence of an exponential growth in North America the Columba migratoria (Passenger pigeon) has very probably become extinct due to a

process of self- sterilization of the Species (DNA damage-modification?).
Considering the effect on the “hunting” in the particular investigation / analysis conducted on the migrating mass (autumn 2018) of woodpigeons (Columba palumbus) in a small (10-15 km radius) corridor on the Mesola-Elba route with the registration (41 detectors selected experts) of 496.389 woodpigeons in 3975 flights, increased to 607.749 in 5850 flights on the enlarged corridor to stop-over areas after the Apennines devalued, in addition to the “numerical dimension” of flocks and other factors in the future analysis, we have analyzed in detail and here we report:
– number of fallen and collected woodpigeons , compared with the overall number of those observed and recorded (hunting effect);
– differentiated age (estimated with unique parameters as per precise indications available in the connected MSM 2018 see https://www.ilcolombaccio.it/CMS/wp-content/uploads/2018/02/MSM-completo.pdf).
FROM MSM (Rinaldo Bucchi) text and booklets: besides the evaluation of the collar (absence in the young, incomplete in the immature – these therefore both vintage pigeons – complete in the adults)
On the outer part of the wings there are the “remiges” pens which are 10 and for simplicity numbered from 1 to 10 (the most external remiging pen is marked with the number 10). Each number corresponds to the progressiveness of the pen pack (first the internal remiges change and the last to change will therefore be n. 10). The remiges are covered above by the so-called “wing coverts” and also these feathers change from the inside to the outside. To distinguish a young wood pigeon from an adult it will be necessary to verify the color of the wing coverts that if they will be greyish and bordered of brown will belong to a young, if rather blackish they will be of an adult. Therefore: a young subject corresponds to gray wing-coverts bordered with brown. To distinguish an adult from a young there are other parameters to be verified: the young

have brown-colored paws, the reddish-colored adults. Below: the beak of the young is cartilaginous and of brown color, that of the adults coriaceous of ivory color – yellowish – sometimes even rosy. In the same way the iris of the eye of the old is yellow, that of the young brown. Even the weight of the subjects examined may suggest their age: the old are much heavier than the young / very young. Finally the white spots begin to adorn the neck of the wood pigeons at the age of 4/5/6 months and are very showy after the year of age of the subjects examined.

The base is represented by 3,201 woodpigeons .

Hunting activity therefore affects 0.52{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of the global migration of 607.749 woodpigeons observed / registered.

These data are perfectly in line with the global trend of the Hunting recorded in other works reported and quoted in IJWR, for several years and for large numbers that always comes to place itself in a range of 0.50-2{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}.

The “reading” of the incidence of hunting on migration, beyond statistical schemes, also makes use of the chronological control of the Booklets of theOservers , where the trend of hunting activities emerges also in discursive terms.

The current 2018 data are also indirectly indicative of the fact that the incidence of hunting increases modestly in areas with stop-over after the Apennines devalue in the first phase of migration rather than in the second phase (October 17-November 15) when it is stronger the migratory thrust, as well as the abatement percentages are drastically reduced at the starting point (Elba island) of the Tyrrhenian and Mediterranean sea transvolata, when the flocks have swollen again and the migratory “furor” is at its maximum

Another element to be considered is the differentiation between 2 periods (1-17 October / 18 October-15 November) and 2 phases ofwaves/peaks, in particular also for the “age”

evaluation.
In the first period (1-17 October) including wave/peak (10-15 October) 1358 woodpigeons and 699 (51{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) in the corridor and 659 (49{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) were killed in the “corridor + para-corridor” in the para-corridor.
In the second period (October 18-November 15) globally 1843 woodpigeons and of these 1201 (65{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) in the corridor and 642 (35{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) in the para-corridor (central Tuscany)
All of this on a total of 3201 dead and collected pigeons.

AGE

Analyzing the global data, the further investigation allows to gather precise data – even in the phase of gathering registration and evaluation of the Detectants – and very indicative data on the woodpigeons migration trend in the report “YOUTH / ADULTS”. The age assessment as previously stated has mainly cataloged three categories “very young, immature, adult” in the Booklets: for the purposes of the exclusive migration analysis, we have considered as a priority only two categories, based on the timing of nesting and experience or less than one previous Migration “Young / Adults”.
The data collected allow us the following schematization:
– in the first period (1 October-17 October) 375 YOUTH in the restricted corridor and 385 in the corridor for a holder of 760 YOUTH (23.74{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of 3201 total);
– in the second period (18 October-15 November) 575 YOUTH in the corridor and 349 in the corridor for a total of 926 YOUTH

(28.92{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of 3201 total)
The above regarding the Young while for Adults:
– in the first period 324 ADULTS in the corridor and 274 in the corridor for a total of 598 ADULTS (18.68{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of 3201 total);
– in the second period 626 ADULTS in the corridor and 293 in the corridor for a total of 917 ADULTS (28.64{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of 3201 total)
In the first period we have 1358 (42.42{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of 3201) where the YOUTH are 55.96{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}.
In the second period we have 1843 (57.57{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of 3201) where the YOUTH are 50.24{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}.
We must underline and remember that the number “3201” represents only 0.52{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of 607.749 woodpiogeons recorded in flight. In the evaluation, albeit minimal given the “small” number, the YOUNG are apparently more numerous – 55.96{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} – in the first period of the Migration and in any case well present also in the second period 50.24{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}.
These data can be compared with some data obtained from similar simultaneous Research 2018 and conducted on 5 differentiated Directories with 22 Detectors and a total of 326.000 registered woodpigeons and 2.206 woodpigeons slaughtered

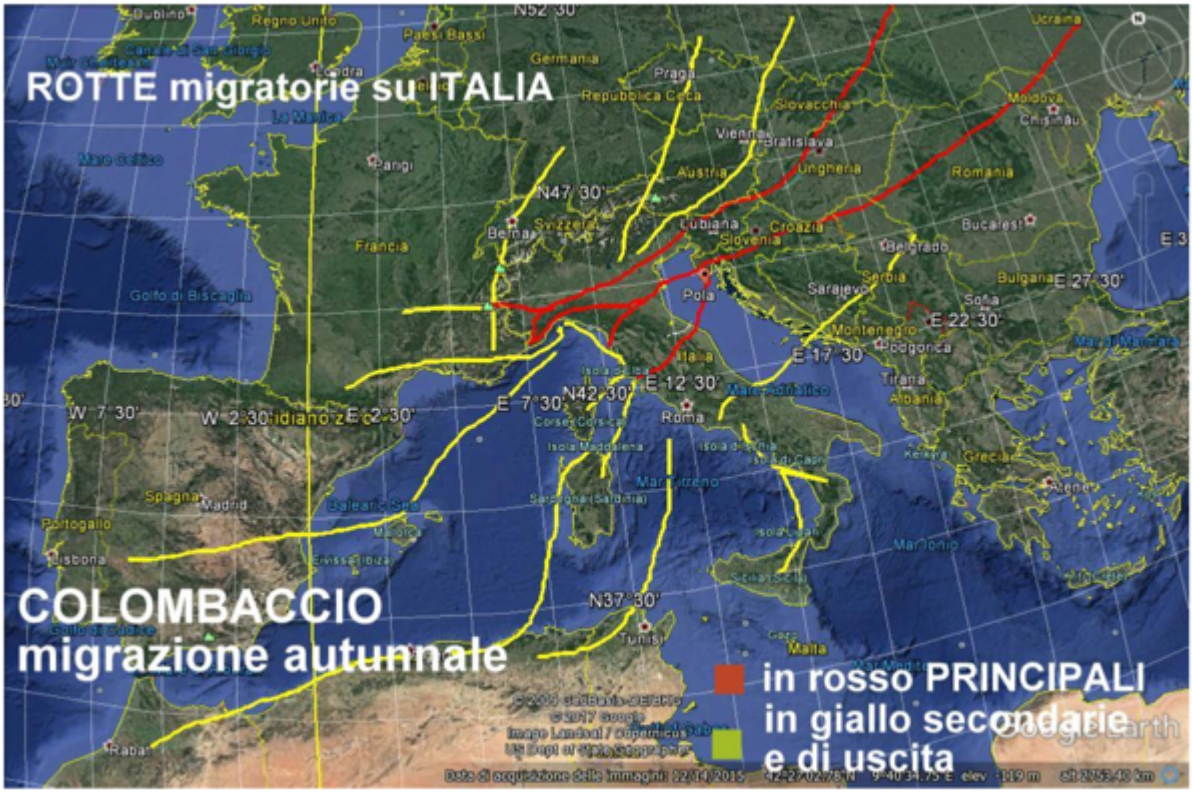
(0.67{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}) where the incidence of the Young is 1147 on 2206 that is 51.99{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} in comparison with 1059 Adults. (MSM – Rinaldo Bucchi)
https://www.ilcolombaccio.it/CMS/wp-content/uploads/2018/02/MSM-completo.pdf
Other detailed analytical data – crossed by time (first and second period of Autumn Migration) and space (restricted corridor – extended corridor – both) and relative numerous "variables" – could be reported, but in fact it does not seem they can offer particular keys of reading of Migration, also given the already mentioned minimal consistency of the "sample" (3201 = 0.52{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} of the migrant mass); this is especially true for the chronological and sequential analysis of short-medium-long migration populations and relative nesting phases upstream of the corridor in Italy. A valid statistical basis for the actual identification – even geographical – of these populations is lacking.
This aspect of lack of knowledge of the precise ORIGINS of the populations that come from us in different waves, as has already been shown with the data of the Colombaccio Project (1997-2007 – ten years) and exposed with in-depth scientific analysis in "The general pattern of seasonal dynamics of the Autumn migration of the wood pigeon (Columba palumbus) in Italy "(published in The Ring 40,10.1515-2018) suggests some questions:
– when do the populations immediately come to us near the Urals (Asian side and European side)? when did they leave? what stops in stop-over areas have they made?
– and this applies to the breeding populations in Russia, Belarus, Scandinavia, Ukraine, the Carpathian region (Romania, Poland, Slovakia) and even Hungary, North and Central North of the Balkan peninsula and gradually also from Regions closer to

us?
– What environmental conditions have affected the duration or not of stop-over? What weather conditions have determined the departures?
– what conditions of moulting and what prevalences of age have occurred in the timetable?
– which –forse- sub-Species we can hypothesize migrants together with the migrating mass (roscioli, topacchi, codoni)
– which charges of parasites (and potentially also viruses) can be realized and where, during the journey?
– does the mixing of these populations in various areas of stop-over carry out movements that are continually "mixed up" or do the populations with various Origins maintain their individuality of course before, during, after crossing Italy?
– How much is changed the "from-North-flyway" to "Mediterranean flyway " ?
–
All this is part of the great chapter of Ecology of Migration and Sensitive Ecology of the Species.
These and other questions also stigmatize the need for a great – as much as possible – precise ORIGINAL SEARCH.

CONCLUSIONS
Ultimately on the basis of the above we can perhaps venture – always in terms of a Preview-preliminary draft – some conclusion of this particular circumscribed analysis and focus on a traditional Director / corridor MESOLA – ELBA.
flocking
The flocks or flocks arrive in Italy with large numbers for the herds that cross the Adriatic Sea, then gradually reduce during peninsular crossing and then regroup in large herds when they leave to cross the Mediterranean Sea
"Hunting" effect
The incidence of withdrawal remains constant between 0.50-1{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5}.
Age

Even with some temporal variation in our specific “sample” the distribution between Youth and Adults remains balanced between 50-55{a6be835d09a84c463fa955f66368ad74671de57ffb293aa26834595a88d1abe5} in the various statistical focuses and in the various phases of Migration. This may mean that this balance is further confirmation of the excellent state of the Columba palumbus species.
Once again we must emphasize how serious is the lack of a specific study on the Origins of the various populations that come to Italy according to the parameters already identified in the work
“The general pattern of seasonal dynamics of the autumn migration of the wood pigeon (Columba palumbus) in Italy” (published in The Ring 40,10.1515-2018)
This then represents itself as an important research challenge in the coming years, just as the challenge of basic anatomo-physiological research on Vitali’s Para-Tympanic Organ remains the foundation of eco-sensitive biological knowledge.
Our current work, which is very circumscribed and represented here with preliminary analysis, remains open to a specialized “statistical” analysis (elaboration) which we hope to be able to carry out with the appropriate collaborations.

The Bibliography remains the one registered in
“The general pattern of seasonal dynamics of the autumn migration of the wood pigeon (Columba palumbus) in Italy” (published in The Ring 40
and as by
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http://journal.ilcolombaccio.it/flocking-preliminary-report-on-the-autumn-migration-2018-in-italy/
–
http://journal.ilcolombaccio.it/woodpigeons-columba-palumbus-autumn-2018-migration-a-particular-research-on-a-single-corridor-fly-way-crossing-central-italy-and-focus-on-flocking/



Legenda *: le principali rotte (in rosso)dalle aree Europee-Russo-*

PLEASE : sorry for possible mistakes ,but consider it as a draft