Impact of Physical Objects on Scaring of Geese

– With an agroecological approach towards the issue of geese as a pest in agriculture

Påverkan av fysiska objekt på skrämsel av gäss
- Med ett agroekologiskt grepp på gäss som skadegörare i lantbruket

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Independent project • 30 credits
Swedish University of Agricultural Sciences, SLU
Faculty of Landsacape Architecture, Horticulture and Crop Production Sience
Agroecology – Master’s programme
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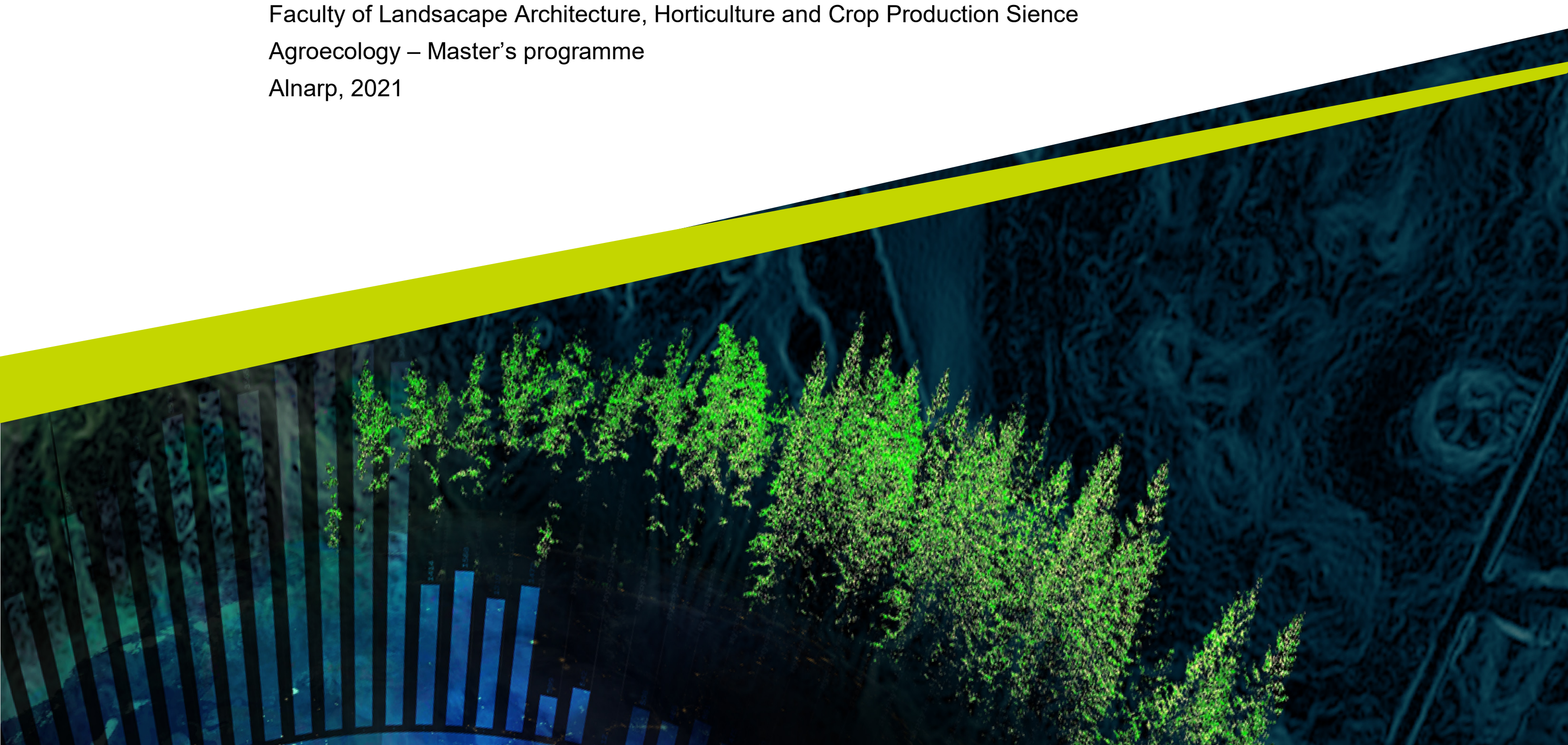

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Abstract

The interactions and conflicts between geese and agricultural interests have risen in the last decades in Sweden. A range of measures are used by humans to disturb and scare geese with the goal to counteract crop damage. The hypothesis of this master thesis is that proximity to physical objects taller than 70 cm above the ground, e.g., woody perennials, houses or naturally occurring topographical features, makes greylag and barnacle geese easier to scare off crops. The incentive to inquire the effect of physical objects on scaring is that landscape and field features such as hedges, agroforestry and buffer strips are often suggested as agroecological practices. Presence of such element is relevant since geese tend to prefer to forage on fields with good visibility range. The data collected could however not prove that geese are more easily scared/disturbed as they are closer situated to physical objects. Among mixed flocks and greylag goose flocks, proximity to physical objects even made them harder to scare away from agricultural fields.

Keywords: Geese, barnacle goose, greylag goose, large grazing birds, agroecological practices, flight initiation distance

Preface

The broad scope of agroecology presents many opportunities for master thesis topics. Especially if one embraces the food system approach and not just the agroecosystem. I struggled for a while to choose my topic, but a basic yet very powerful sentence that made me finalize my choice, was the following (Smith & Smith 2015 p. 87):

> How adaptations enable an organism to function in the prevailing environment – and conversely how those same adaptations limit its ability to function in other environment – is the key to understanding the distribution and abundance, the ultimate objective of the science of ecology.

During my time as a master student, I've sometimes felt that the approach in classical ecology differs a lot from the agroecological approach, where the latter is much more applied and value driven. The interactions between geese on agricultural land and humans, should therefore be seen from an applied perspective, if it is to be considered agroecology.

To write a master thesis, has been quite a different process and feeling than taking other university courses. Without my helpful and cheerful supervisors Johan Månsson and Johan Elmberg, I'd probably have felt lost and bored. The skills, that I've trained and come to value the most while writing my master thesis, are probably statistics in R as well as practical field work. Critical thinking and writing came naturally to me after 1.5 years of courses in agroecology.

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Abbreviations

CAB	County Administrative Board/Länsstyrelsen
EU	European Union
FID	Flight Initiation Distance
GIS	Geographic Information System
GPS	Global Positioning System
LGB	Large Grazing Birds, i.e., (in Sweden) swans, geese and cranes
NVV	Naturvårdsverket/Swedish Environmental Protection Agency
SLU	Sveriges Lantbruksuniversitet/Swedish University of Agricultural Sciences
T-goose /geese	Target Goose/Geese. In this thesis referring to greylag goose and barnacle goose
WP	Waypoint

1. Introduction

The interactions between wild geese and humans have increased in the last 50-70 years. This is true for both Europe (Fox & Madsen 2017; Fox et al. 2017) and Sweden (Montràs-Janer 2021). The way we farm affect the numbers of geese, and farming practices and productivity are reciprocally affected by the numbers and distribution of geese. There are several goose species in the world; in Sweden nine of them occur naturally and annually (Artdatabanken 2021b).This thesis targets two of them: greylag goose (*Anser anser*) and barnacle goose (*Branta leucopsis*). Hereafter collectively called *target geese* (*T-geese*). Also, if not specified differently, the words “goose” and “geese” refer to wild individuals/populations and not domesticated ones.

Together with common cranes (*Grus grus*) – T-geese are the bird species that render the highest number of damage reports from Swedish farmers to county administrative boards (CABs) (Montràs-Janer 2021). Between the year 2000 and 2015, barnacle geese in single species flocks or as a part of mixed flocks prompted 804 damage reports (ibid.). Greylag geese in single species flocks or as a part of mixed flocks prompted 772 damage reports (ibid.).

In contrast to many other farmland bird populations, most goose populations that are part of European flyways have benefitted from the agricultural intensification and rationalisation in the last 50-70 years (Fox & Madsen 2017). Agroecological practices, on the other hand, usually aim at diversifying the agroecosystem itself and the landscape where it’s imbedded (Wezel et al. 2014; Gliessman 2015). Agroecological practices incorporated directly on cropland include intercropping and agroforestry, but also to actively manage landscape features surrounding cropland, e.g., hedges, buffer strips and field islets. A pronounced goal of integrating or re-integrating such landscape features is to provide habitats for natural enemies to pests inside cropland (Wezel et al. 2014). Compared to an agricultural landscape of monocultures with vast fields, the mentioned agroecological practices typically lead to increased patchiness and occurrence of physical objects on and around cropland (Gliessman 2015; Snapp & Pound 2017). As geese prefer to forage on arable land with extended visibility range (Fox et al. 2017; Rosin et al 2012), it’s relevant to study how they react to scaring/disturbance depending on how closely they are situated to physical objects that reduce their visibility range. Qualitative features of physical objects that reduce visibility range can be assumed to have an impact on both habitat provision for goose predators, and how much the visibility range is actually decreased. In the results of this thesis, no distinction between qualitative aspects of physical objects is however applied,Objects that are more typical of agroecological practices, e.g.,trees or other taller vegetation in buffer zones are treated the same as houses or road embankments. Of course, it would be more agroecologically relevant to only look at physical objects that are also suggested as agroecological practices. However, that would require a different study design where I would be confined by where these objects were situated and not where the geese happen to be. Data collection would take much longer time using that type of approach.

Passive or active scaring of geese from agricultural land is utilized to prevent crop damage, and one way to see how sensitive geese are to scaring, is to measure flight initiation distance (FID). It simply shows at which distance geese (or any birds) initiate flight from a human being or other actively disturbing element. Geese that show high values of FID are more easily scared away from agricultural land and can therefore be assumed to cause less crop damage. Therefore, it's interesting to see if variables, such as distance to physical objects from geese, leads to increasing FID.

1.1. Hypothesis and aim

The underlying research question for this thesis is how the dependent variable FID is affected by the independent variable of distance to surrounding physical objects. Other independent variables, that is flock constellation, flock size (number of LGB individuals) and date of the scaring trial will also be analysed, yet there's just one main hypothesis:

H_1=Distance to objects taller than 70 cm above the ground, shows a significant negative association with FID among greylag and barnacle geese, i.e., ρ (rho) should be negative at an alpha level of 0.05.

Corresponding null hypothesis is then:

H_0=There's no negative association between distance to objects taller than 70 cm above the ground and FID for greylag and barnacle geese.

The limit is set to 70 cm above the ground, because this is roughly the height at which the eyes of T-geese are positioned when they're standing on the ground with partly or fully stretched necks. Logically, physical objects taller than 70 have the largest relevance for visibility range among geese.

Note that mere a correlation between FID and proximity shouldn't lead to confirmation of H_1, i.e., the correlation must be negative. The statistical tests should therefore be negatively one-tailed.

In a linear model the alternative hypothesis could also be described as: $\hat{y} = a + -b*x$.

In this equation > ŷ<is the FID and thus the dependent/response variable. >a< is the intercept of the y-axis. >-b< is the coefficient describing the negative correlation and >x< is the distance to a physical object surrounding T-geese.

The ultimate aim of the thesis is that the knowledge generated can be utilized by farmers that wish to adopt agroecological practices to combat geese as a pest on cropland.

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1.2. Study design

The results gathered and presented in this thesis are based on an *observational prospective* study design with a *deductive* hypothesis.

The study design is termed observational since the subjects (geese) were treated as similar as possible, and with no purpose of treating the subjects differently. Additionally, other independent variables that I measured, e.g., species constellations and distance to objects from the flocks, were out of my control. And since this is an observational study, I can just point at correlations rather than ultimate causation of FID. Although, I tried to avoid scaring the same geese more than two days in a row, I can't be sure that this was actually the case. This is further discussed in the methodological design.

The study design is prospective because I collected the data myself and the data have not been published anywhere else.

The hypothesis formulated is deductive since it's based on already existing hypotheses claiming that geese prefer foraging sites with good visibility compared to reduced visibility.

2. Background

2.1. Geese

2.1.1. Taxonomy and species identification

In daily English and Swedish language, the words *geese* and *gäss* refer to the two genera of *Anser* and *Branta*, see figure 1.

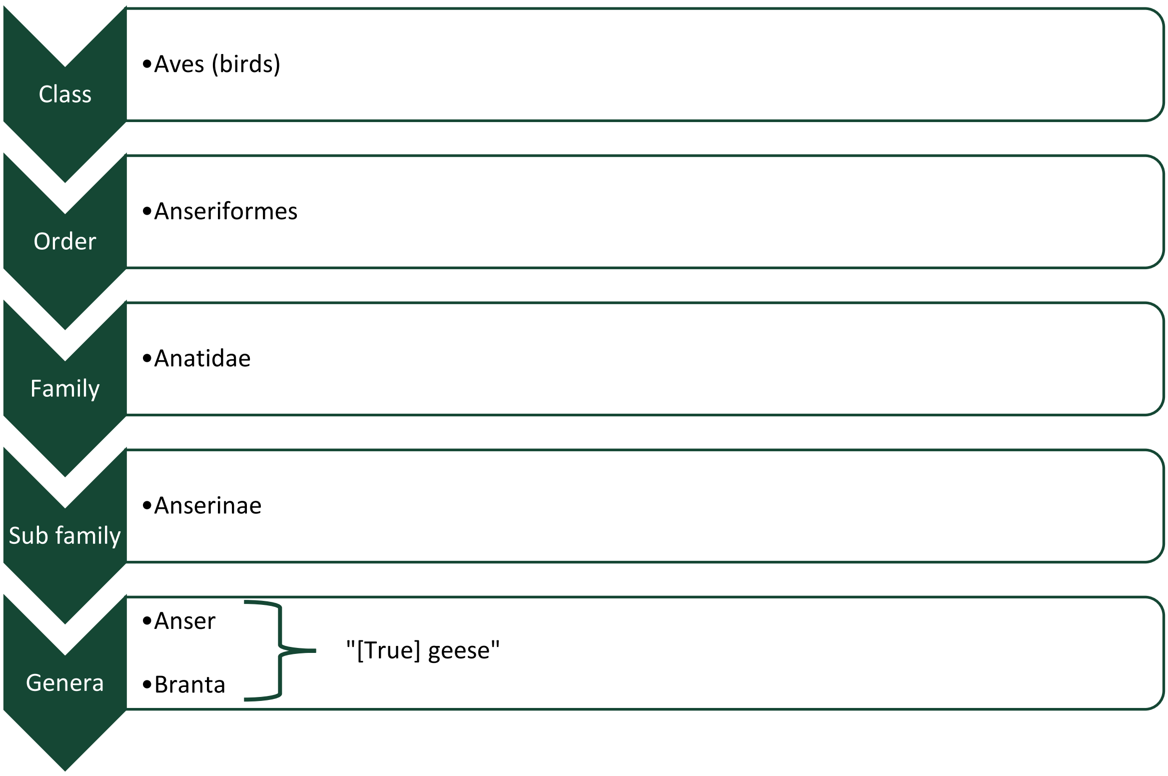

Figure 1. Taxonomic hierarchy from birds down to true geese, i.e., the genera Anser and Branta. Sometimes the term "True geese" is reserved for the Anser and Branta genera. In this paper, no distinction is however made between geese and "True geese".

As the species concept is debatable within biology, some goose populations are subject to taxonomic debate. In this thesis, I will however just rely on the taxonomic classification by SLU Artdatabanken (2021b). This implies there are six *Anser* species and three number of *Branta* species annually and naturally occurring in Sweden, see table 1.

Table 1. Goose species annually and naturally occurring in Sweden (SLU Artdatabanken 2021b). Note that there is a taxonomic discussion about species distinction of some populations. Hybrids between species may also occur. Further subspecies could also be distinguished. T-geese in bold letters.

Anser genus	***Branta*** genus
Lesser white-fronted goose - *A. erytrhropus*	**Barnacle goose - *B. leucopsis***
Taiga bean goose - *A. fabalis fabalis*	Canada goose - *B. canadensis*
Tundra bean goose – *A. fabalis rossicus*	Brent goose - *B. bernicla*
Greylag goose - *A. anser*	
Greater white-fronted goose - *A. albifrons*	
Pink-footed goose - *A. brachyrhynchus*	

Due to appearance similarities, some goose species can be hard to distinguish visually from each other in field: this is particularly true for bean goose, pink-footed goose and subadult greater white-fronted goose (Svensson 2009). In the case of greylag goose and barnacle goose, it's usually much easier to distinguish them from other goose species based on plumage. Especially when they're observed on the ground and with a field scope, as is the case in my method, see chapter 2.

Figure 2. Greylag goose – Anser anser. (Åsa Berndtsson 2004). https://commons.m.wikimedia.org/wiki/File:Gr%C3%A5g%C3%A5s_Greylag_Goose_(14341925828).jpg

Figure 3. Barnacle goose – Branta leucopsis. (Tony Hisgett 2013). https://commons.wikimedia.org/wiki/File:Barnacle_Goose_(8677586443).jpg

2.1.2. Physiology and ecology

Geese are obligate herbivores with a simple and short digestive system compared to other herbivorous species. Because of their simple digestive system, they must consume large amounts of plant tissue relatively to their body weight (Fox et al. 2017). Plant tissues with low fibre/roughage content are therefore preferred by geese. Plants with such features are commonly found inside managed agroecosystems, which may lead to intense interactions between agriculture and geese. The green revolution in the 20th century brought crops with higher proportions of protein and starch in the biomass (Fogelfors 2015; Gliessman 2015). This led to increased harvests and harvest indices (harvested biomass/residual biomass of crop) of such crops (Fogelfors 2015). These plant breeding advancements also benefitted foraging efficiency among geese as they already had adaptations to feed on crops with higher proportions of protein and starch than plants in natural ecosystems usually offer (van Eerden 2005; Fox et al. 2017; Fox & Madsen 2017). Many goose populations in Europe have therefore shifted their diet from wild plants to agricultural plants, which is especially true for wintering geese (van Eerden et al. 2005).

Multiple variables affect where geese forage, and one variable that was confirmed in a review article was the size of agricultural fields (Fox et al. 2017). The attractiveness of large fields has been shown to remain also when the same crop has been grown in fields of different size (ibid.) The plausible reason for this is that geese more easily detect and escape from predators when on large fields compared to smaller fields, thanks to the extended visibility range that larger fields provide (Vickery & Gill 1999; Rosin et al. 2012; Fox et al. 2017). The combination of large fields adjacent to roosting sites typically attract geese, and during such conditions, the conflicts between farming interests and geese are accentuated (Fox et al. 2017; Nilsson et al. 2019).

Depending on life history activity, geese can be broadly categorized as

- wintering,
- migrating or
- breeding

T-geese belonging to each of these life history categories forage on agricultural crops in Sweden (SLU Artdatabanken, 2021b). In March, when data were collected for this thesis, geese found in Scania may be wintering, migrating, or breeding as the latter typically starts in March for European populations (Svensson 2009; Carboneras & Kirwan 2020). Diet and response to disturbance also changes depending on life history activity (Carboneras & Kirwan 2020), and that's why it's interesting to analyse date as an independent variable for FID. T-Geese are opportunistic foragers and a larger share of the Swedish breeding population also winter in Sweden and Northern Europe now than 15-30 years ago. (Olsson et al. 2018; Carboneras & Kirwan 2020; SLU Artdatabanken 2021b). This can be attributed to elevated winter temperatures, as well as more winter sown cereals providing food all winter (Fox et al. 2017; Olsson et al. 2018).

2.1.3. Population and damage trends

As with most wild animal populations, it's hard to know exact numbers of individuals. However – based on the criterion of International Union for Conservation of Nature (IUCN) – neither greylag goose nor barnacle goose are red listed in Sweden (SLU Artdatabanken, 2021c; SLU Artdatabanken 2021d). They are both categorized as *Least Concern* (*LC*).

There are six different monitoring systems, with somewhat different methods and objectives, that provide indices about number of T-geese in Sweden (SLU Viltskadecenter 2018). One of these monitoring systems is called *Viltskadestatistik* (eng. game damage statistics). Since game damage statistics focus on geese on cropland, it's the monitoring system that has the highest relevance for this thesis. Figure 4 shows trends for damage caused by T-geese. When Montràs-Janer (2021) compared annual damage between LGB between year 2000 and 2015 in the game damage statistics, she concluded that:

- Barnacle goose caused the second highest number of damage reports (804) and greylag goose caused the third highest number of damage reports (772)

- Barnacle goose caused the second highest number of yield losses (11 531 metric tonnes) and greylag goose caused the third highest yield losses (9 157 metric tonnes)
- Barnacle goose caused the highest number of compensation costs to farmers (1 136 000 euros) and greylag goose caused the third highest number of compensation (738 000 euros).

Socioeconomic reasons may however also explain differences between farmers' willingness to report damages from LGB. Moreover, one and the same farmer may also be differently prone to report damages from year to year (Montràs-Janer 2021). The drivers and factors influencing farmers' willingness to report crop damage are also emphasized as a needed future research perspective by Montràs-Janer (2021).

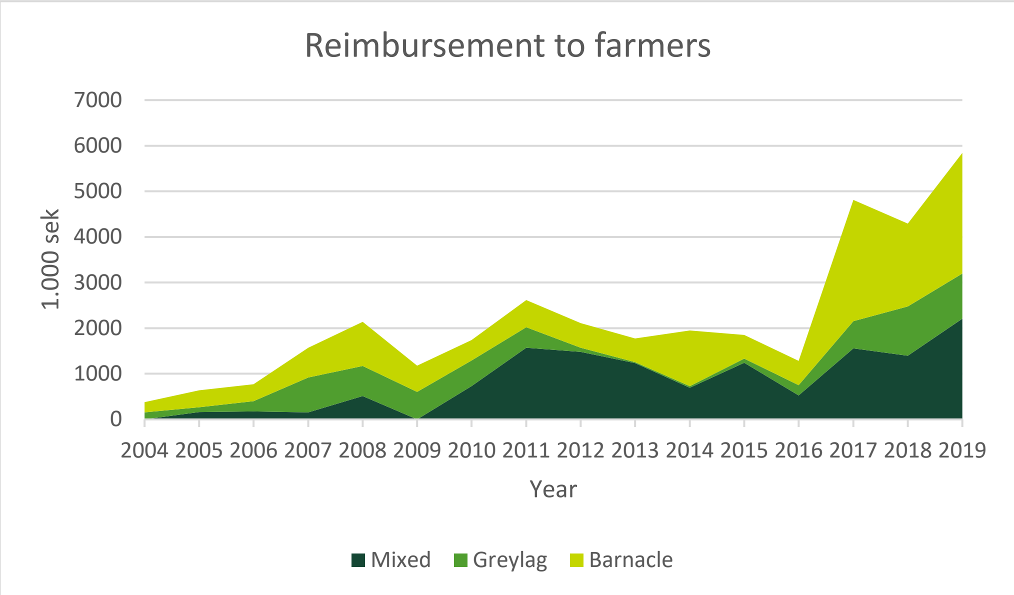

Figure 4. Reimbursement to farmers due to damage from T-geese. Mixed flocks include reimbursements where T-geese were present with other LGB. The relative damage caused by T-geese in such mixed flocks is however not revealed. The graph is based on game damage statistics between 2004 and 2019. All annual reports can be found at the webpage of SLU Viltskadecenter (2021).

Reimbursement, as presented in figure 4, includes both *compensation* for caused damage as well as *subsidies* for proactive measurements. The most common proactive measures that farmers were subsidized for in 2019 included (Frank et al. 2020):

- Diversionary feeding sites to lure birds away from economically sensitive crops (mainly by spreading of grains during certain time periods).

- Different scaring measures, e.g., liquified petroleum gas canons, flags and mirror scaring devices.

- Accommodation fields where birds may graze undisturbed.

Reimbursement to farmers don’t necessarily reflect the abundance of different LGB species in Sweden, since reimbursement is paid differently depending on the species. Nonetheless, there seems to be a general correlation between crop damages and species abundance of T-geese in Sweden (Monträs-Janer 2021). Between 2000 and 2015, there was a positive correlation between population indices of T-geese and i) number of damage reports, ii) yield loss (biomass) and iii) reimbursement to farmers of T-geese. Population indices were based on autumn counts of wintering and staging T-geese in southern Sweden. The yield losses and reimbursement paid per reported damage increased for barnacle geese, but not for greylag geese between 2000 and 2015 (Monträs-Janer 2021). In other words: the number of reports on crop damage caused by greylag geese increased between 2000 and 2015.

2.2. Legislation

In response to declining bird and goose populations in the first half of the 20th century in the EU, The Birds Directive was implemented in 1979 (European Commission 2019). Together with the Habitats Directive, it provides the main framework for nature conservation and protection in the EU (ibid.). Even though the Birds Directive aims to prevent all kind of human-initiated direct disturbance and killing of wild birds within the EU, it also contains a specific article about birds causing damages directly to crops. Exemptions to disturb and kill wild birds may be given if it aims to prevent *serious* damage to crops, livestock, forests, fishery and water resources (The European Parliament and the Council of the European Union 2009/147). The Birds Directive also stipulates what member countries of the EU may decide nationally and what must be negotiated at multilateral level, for example what might be considered as *serious* crop damage.

In the Birds Directive and on Swedish national level as well, many amendments, that regulate how barnacle and greylag goose may be disturbed and hunted, have been implemented. Without making it too detailed it’s still fair to say that barnacle geese are more protected from hunting and disturbance than greylag geese are (SFS 2001:724; The European Parliament and the Council of the European Union 2009/147).

In 1995, the Swedish government initiated a system where farmers can apply to the CABs for reimbursement due to damage from animal wildlife (Monträs-Janer 2021). The legislation is not specific for geese, but also includes large predators such as wolves and bears. The rules are outlined in Viltskadeförordningen (SFS 2001:724) and Naturvårdsverkets (NVV) rules about subsidies and reimbursements

(NFS 2008:16). Reported damages are inspected and analysed by inspectors from the CAB, and thereafter reimbursement may get paid to the affected applicant/farmer depending on the culprit species.

2.3. Diversification and agroecological practices

Since agroecology can be referred to as a movement, a practice and a scientific discipline, (Hazard et al. 2016; FAO 2021), it can be hard to define it. To make it more concise, Wezel et al. (2014) described 15 agroecological practices that were repeatedly found in agroecological scientific publications. To qualify as such, the practice had to contribute to at least one of the following aspects i) Efficiency increase ii) Substitution of inputs iii) Redesign of the agroecosystem or/and the surrounding landscape. Most of these practices rely on diversification of the agroecosystem and more complex food-webs compared to industrial monocultures. The redesign practices are exemplified with re-integration and incorporation of natural and semi-natural elements such as hedges and vegetation strips surrounding areas of more intense agricultural production. Agroforestry systems, where trees are more directly incorporated into areas of intense agricultural production are also identified as a redesign practice (Wezel et al. 2014). It's therefore quite obvious that agroecological practices, aiming for redesign, would create a different farming landscape with smaller field size and more physical objects between areas of intense agricultural production and ultimately decreased visibility range for geese, which is something that geese typically avoid when they forage (Rosin et al. 2012; Fox et al. 2017).

3. Materials and methods

The data collection for this thesis was based on a method already applied in the national goose project “From field and farm to flyway” which is run by my two supervisors: Elmberg and Månsson. In addition to the method of scaring trials they had already developed, I collected data for distance to physical objects surrounding LGB flocks during scaring trials.

In total, 164 scaring trials were performed where each scaring trial can be seen as a sample. Due to data collection errors, 13 scaring trials had to be removed, thus 151 valid ones remained. Sites of scaring trials are shown in figure 8.

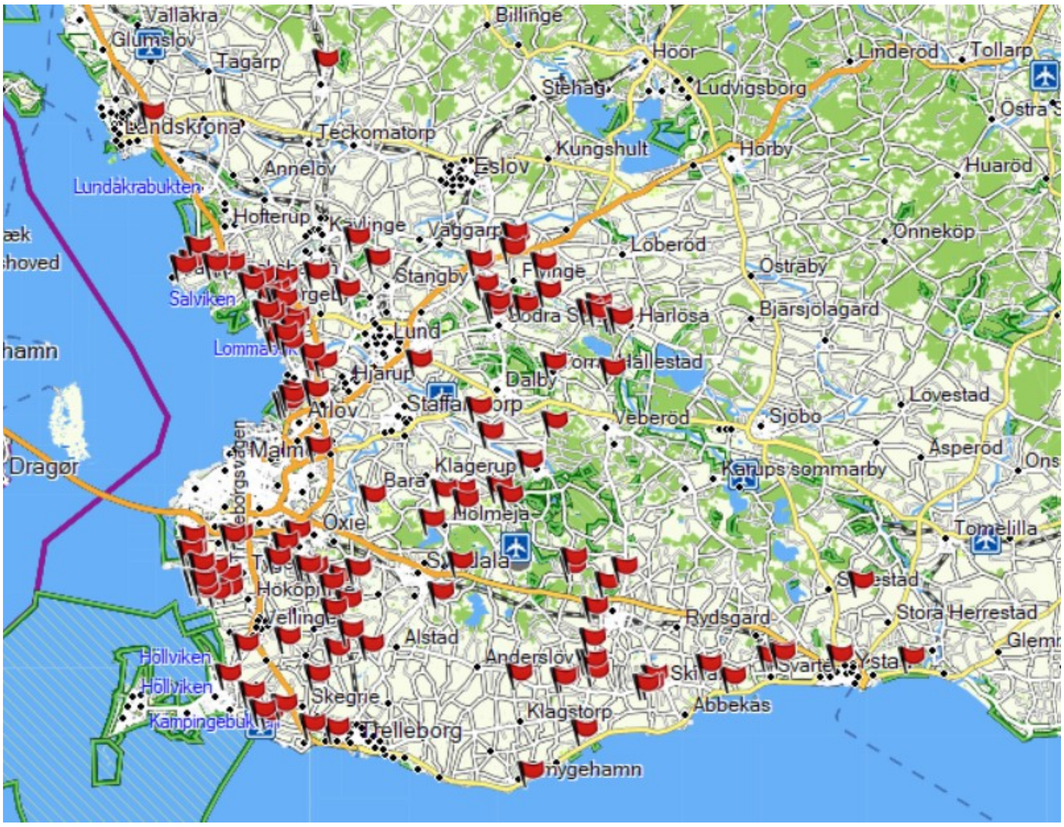

Figure 8. Each red flag indicates a scaring trial site, 13 of the scaring trials were later removed due to data collection errors.

3.1. Species, scaring sites and limitations

Barnacle and greylag geese were targeted because they are two of the most common and main culprit species for crop damage in Sweden (Monträs-Janer 2021), see section 1.3.3. However, since T-geese often aggregate with other LGB species, the flocks that I scared could also contain other goose species and whooper swans (*Cygnus cygnus*) Further limitations defined in advance included:

- As specified by the hypothesis, scaring trials were only carried out on agricultural land, i.e., recreational parks, golf courses, home gardens, etc. were omitted.
- Scaring trials were not performed inside nature reserves, national parks or other wildlife refuges.
- My own visibility range had to be at least 500 m., this implied that scaring in darkness or foggy weather was excluded.
- If something obvious disturbed the flock during the scaring trial, it was cancelled and not included in the data set. Such unintentional disturbance included other humans, predators, or vehicles.

Through the species gateway Artportalen, run by SLU Artdatabanken, I could see where T-geese had been observed by the public in the last months and in the last years (Figure 9). As I was based in Malmö, I could then confirm that there should be enough T-geese within 70 km from my home during the data collection time frame. Note, however, that the observations through Artportalen in figure 9 only mirror observations, but not standardized absences.

To at least *avoid* scaring the same goose individuals too close to each other in time, I didn't visit the same area two days in a row, which was controlled with the help of my GPS. No guarantee can however be given that I didn't scare the same goose individuals two days in a row since geese naturally cross the borders between the areas I visited. This approach is further discussed in the methodological discussion.

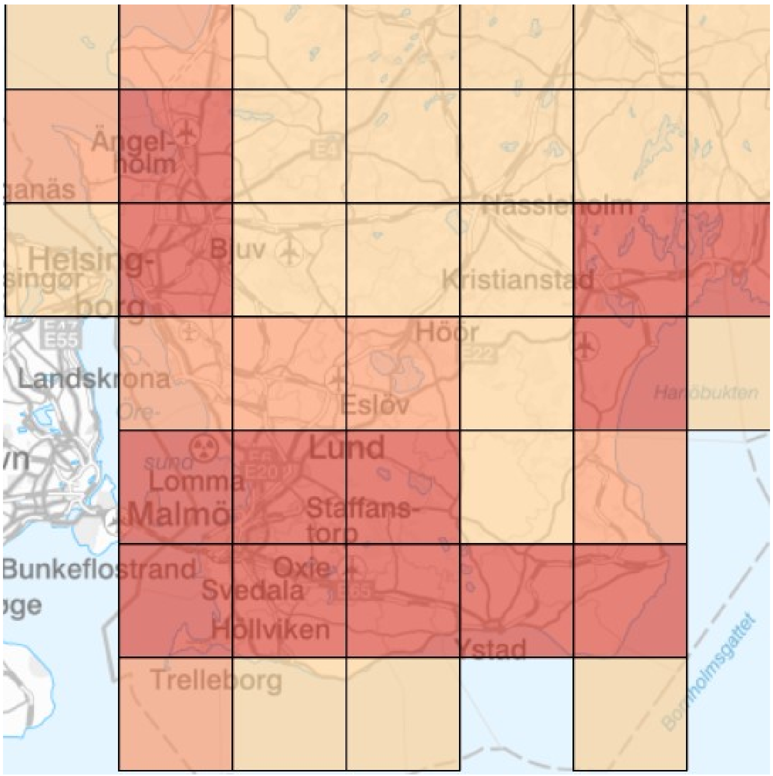

Figure 9 (Used under publisher's permission). Observations by the public of T-geese between 2016.01.01 and 2021.02.06 in Scania. Darkness of squares indicate higher numbers of observations. (SLU Artdatabanken 2021a)

3.2. Scaring procedures

All WPs (waypoints) were recorded with a handheld GPS. A simplification of the method is shown in figure 10. Numbers of scaring trials per day varied between one and eleven (figure 12). During all scaring trials, I wore the same plain-coloured jacket of burgundy. Colours of trousers varied between grey and green. My own height is 191 cm and my weight is 83 kg.

The data collection proceeded as follows:

1. While I was driving, I looked for T-geese through my car without binoculars or other optical aides. For geographical range of scaring sites, see figure 8 above.
2. Where the traffic situation allowed safe parking the car, a scaring trial could be conducted. Free sight between myself and the majority of the individuals in the flock was a prerequisite, too. When the sight requirement couldn't be met, I walked to a spot where there was free sight between me and the majority of the individuals in the flock. The walking direction to such a spot

was never directly towards the geese, i.e., less than 180° towards the flock.. The distance between the car and the flock varied and the only goal was to park the car so that its presence didn't initiate flight of the flock.

3. I counted the number of individuals of each LGB species. For flocks of more than roughly 100 individuals, individuals were not counted exactly, but rather in units of five or ten. If there were species identification uncertainties, I used a field scope to get sure.
4. Waypoint (WP) 1 was registered as soon as I had exited the car or at the spot where there was free sight between the majority of geese in the flock and myself (see step 2).
5. I then walked towards the approximated centre of the flock in typical walking pace in a calm manner. Walking speed wasn't registered but most likely varied between 3 and 6 km/h. I intended to walk as straight as possible towards the flock, but this had to be balanced against not getting too wet myself and if the crops growing in the field was likely to get seriously damaged by my footsteps.
6. When the first goose/geese in the flock, initiated flight, I stopped walking and registered WP2 with the GPS. If the flock consisted of different LGB species, it was registered in which order the species initiated flight.
7. I next walked to the spot where I assessed that the first goose/geese initiated flight and registered WP3 with the GPS. The accuracy of reaching this spot varied due to field and landscape factors, particularly muddiness and water saturation. This is a validity issue which is brought up in the methodological discussion. At WP3 I also collected data for an additional variable:

- Distance to nearest physical objects surrounding WP3. With help of the compass in the GPS, objects were sought after in the four cardinal directions: i.e., north, east, south, and west. For each cardinal direction, a laser gauge was used to detect and measure distance in meters to the nearest physical object in each cardinal direction. The laser gauge was held horizontally at 70 cm above the ground at WP3. The objects had to be stationary, i.e., not moving. For instance, cars passing by were omitted.

8. After registering the observations at WP3, I walked back to the car. A new scaring/sampling could be done after a minimum of 2 km of driving, alternatively if the T-goose individuals were believed to not be the same ones that had just been scared in the previous scaring trial. This was determined by simply observing the flight direction of the previously scared flock.

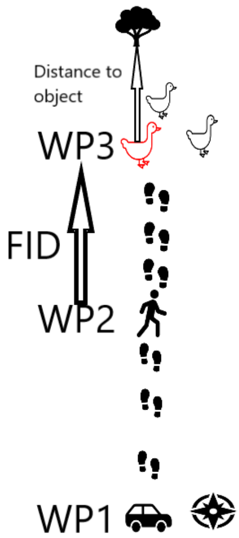

Figure 10. A simplified illustration of the method. The red-marked bird shows that this is the first individual that initiated flight, and thus where WP3 was marked.

3.3. Materials

3.3.1. Field materials

To accomplish the method described above, the following materials were used:

- Car (Toyota Corolla, estate car – specified since appearance and sound of the car might have an impact on the scared flocks)
- Field binoculars (Nikon ProStaff 7S, 8x42)
- Field scope on tripod (Lotus SP80)
- Laser distance gauge (Leica RangeMaster CRF 800)
- Handgeld GPS (Garmin ETrex 32X). The device utilized both GLONASS and GPS satellites.
- Wooden stick of 70 cm height to control for height at WP3.

3.3.2. Data treatment and software usage

Coordinates/WPs were transferred to the BaseCamp software issued by Garmin, using the Topoactive Europe 2020.20, North East map. Coordinates were also converted from WGS84 to RT90 coordinates in ArcGis. The Pythagorean theorem, using X and Y-coordinates of the RT90 system, was then utilized to obtain the FID values.

Since distance to objects was measured in four cardinal directions, distance to object/s can be displayed in two ways:

1. Distance in meters to the nearest object in one of the cardinal directions.

2. Average distance in meters to objects, i.e., sum of distances to objects in each cardinal direction divided by the number of measurements. Since objects couldn't always be measured in each cardinal direction, the number of measurements differed.

All data were then compiled in an Excel CSV spreadsheet which was subsequently imported into RStudio developed by the R Core Team (2020). The following packages (authors/developers in brackets) were also used for data analysis and creating the plots of this thesis.

- Tidyverse (Wickham et al. 2019)
- Corrplot (Wei & Simko 2017)
- Lubridate (Grolemund & Wickham 2011)

In total, 164 scaring trials were performed, but 13 were removed from the analysis due to data collection errors. This rendered 151 scaring trials included in the analysis. Flock constellations could have been defined in different ways, read further in the methodological discussion, but the chosen definitions of flock constellations were:

1. Flocks containing greylag geese but no barnacle geese.

2. Flocks containing barnacle geese but no greylag geese.

3. Flocks containing both greylag and barnacle geese, i.e., mixed.

It's the distinction above that is referred to when the simplified terms "greylag goose flocks" or "barnacle goose flocks" is mentioned in the continuation of this thesis. Keep in mind that these definitions of constellations imply that LGB species other than T-geese were sometimes also present in the flocks. Further on, this definition of flocks, doesn't take flight initiation order between species into account.

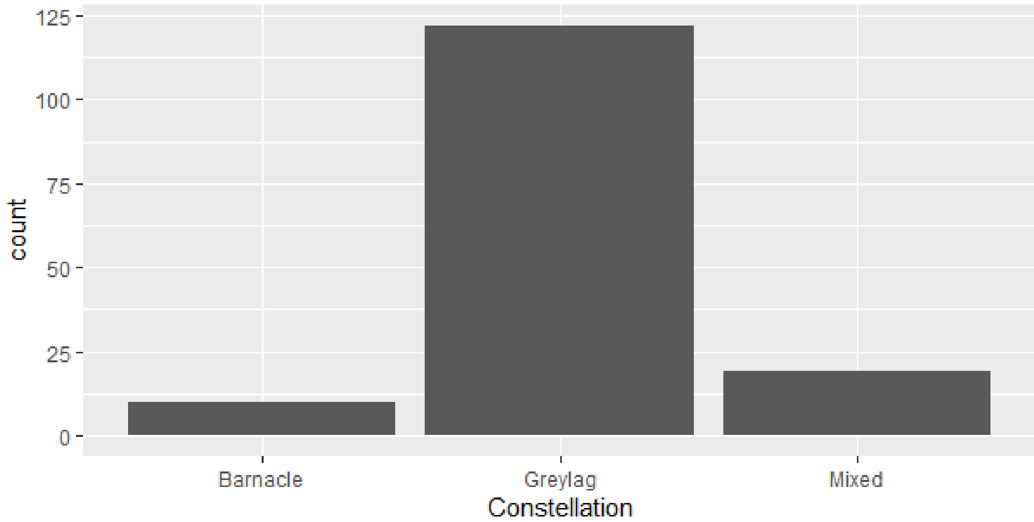

Figure 11. Species constellations of scared T-geese flocks. Barnacle goose flocks=10, greylag goose flocks=122, mixed flocks of barnacle and greylag goose=19

Scaring trials started on 2021-02-12 and finished on 2021-03-23. The number of scaring trials was relatively evenly distributed throughout the study period (Figure 12) Note that there are different time gaps between dates when scaring trials were performed. Dates of the scaring trials were transformed to of ordinal dates of 2021 with 2021.01.01 as the start value (1) in correlation tests and linear models.

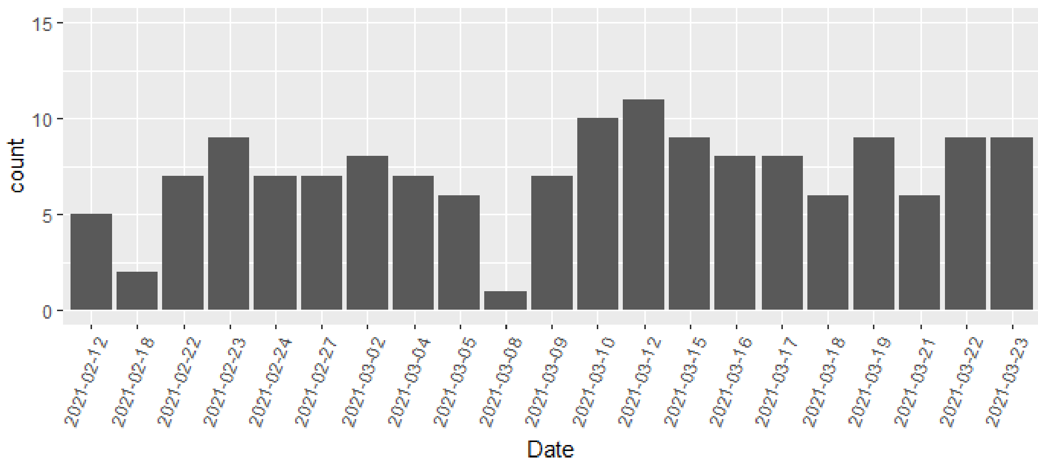

Figure 12. Number of scaring trials per day.

3.3.3. Statistical tests

By looking at figure 13, one can conclude that FID was not normally distributed. However, FID-values became normally distributed by logarithmic transformation with the natural logarithm (e≈2.72), which is shown in figure 14. Also, in all other graphs and statistical tests, it's the natural logarithm that is used when logarithmic transformation is mentioned.

Constellation-wise, Shapiro-Wilk tests showed that FID was probably (p=0.92) only normally distributed in flocks containing barnacle geese but no greylag geese. But due to the small sample size of this constellation n=10, the probability of normality shouldn't be relied on. The overall unnormal distribution of FID among flocks, led to the decision to run the non-parametric Spearman's correlation coefficient test, since it doesn't require normally distributed observations.

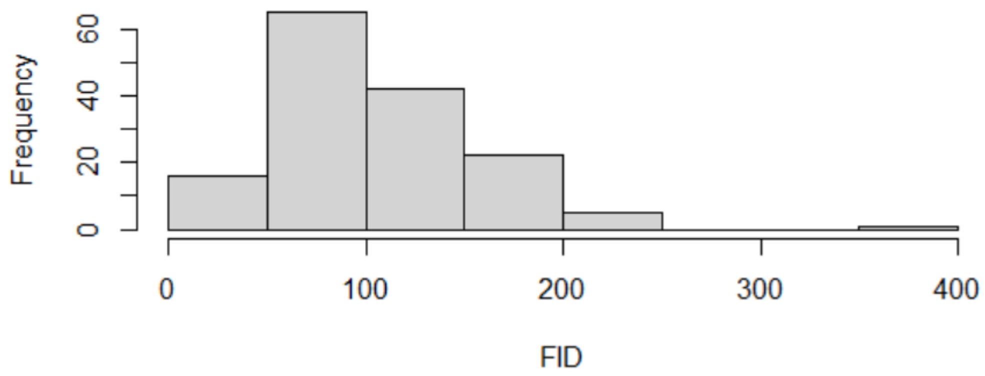

Figure 13. Distribution of FID for all scaring trials. FID-values are clearly skewed.

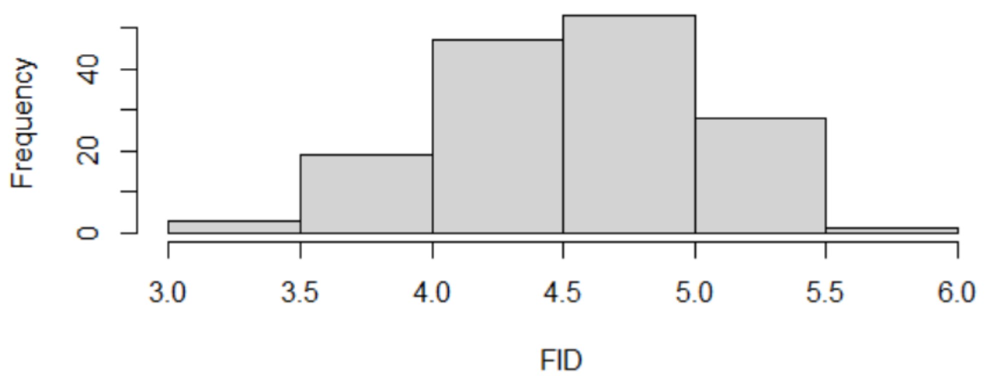

Figure 14. Logarithmically transformed FID-values. Shapiro-Wilk normality test yielded a p-value of 0.432, which indicates a high probability of normal distribution in the population.

Since the alternative hypothesis required FID to correlate negatively with distance to object, the correlation tests for *distance to object* was decided in advance to be negatively one-tailed. Ties that appeared in Spearman's correlation tests rendered inexact p-values, which were treated with asymptotic t-approximation.

Also when grouped by constellation, FID-values became normally distributed by logarithmic transformation in each constellation. Consequently, the linear model in figure 28 and table 3 to 5 showing multiple regression of date, flock size and distance to nearest object, is based on logarithmically transformed FID-values. Untransformed FID-values should not be considered statistically valid in the linear modelling, but for comparative purposes these are shown in appendix 3.

Besides the variables presented in the results, data for several other variables were also collected during the scaring trials, but these were omitted in results and in the linear modelling.. The entire data set, which also includes variables that weren't analysed, is found in appendix 1.

4. Results

The results are mainly displayed through tables and diagrams with supplementary descriptions. The first section shows general aspects of the data set and FID features related to the independent variables one by one. The second section describes the results through linear modelling taking multiple independent variables into account. FID is always expressed in meters.

4.1. General features of the data set

Flight intiation order between species is shown in figure 15. Of all scaring trials, 118 flocks were single-species flocks, whereas the remaining 33 flocks were mixed, and it's the latter 33 that are shown in figure 15. Since FID was measured as the first LGB individual/s/ initiating flight, this created multiple flight initiation orders.

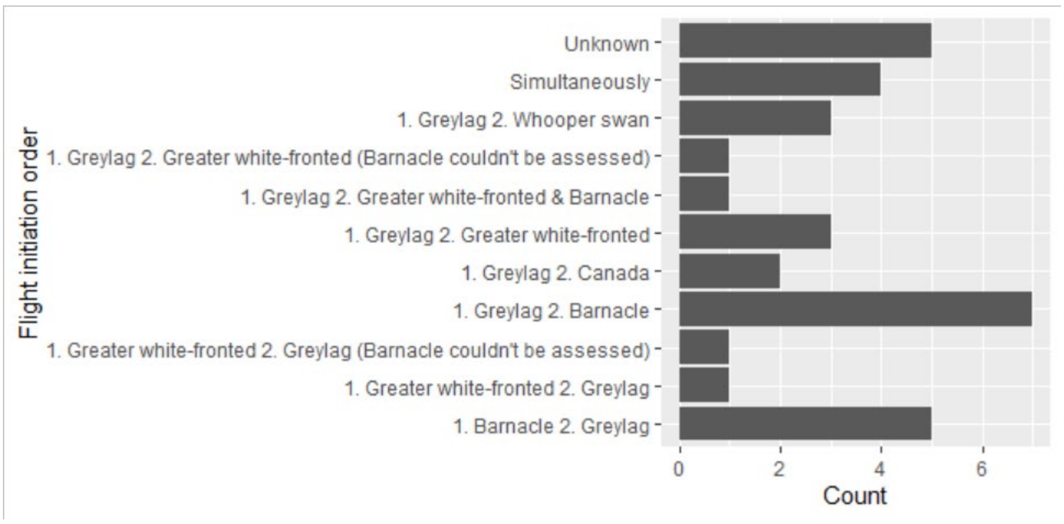

Figure 15. Flight initiation order by species in flocks containing more than one LGB species. "Unknown" refers to flocks where it was not possible to determine the flight initiation order. In some cases it was not possible to tell the order of a specific species, see brackets.

Most flocks were comparitevely small in numbers of LGB individuals (see figure 16a and 16b). Only 15 out of 151 flocks contained more than 100 LGB individuals.

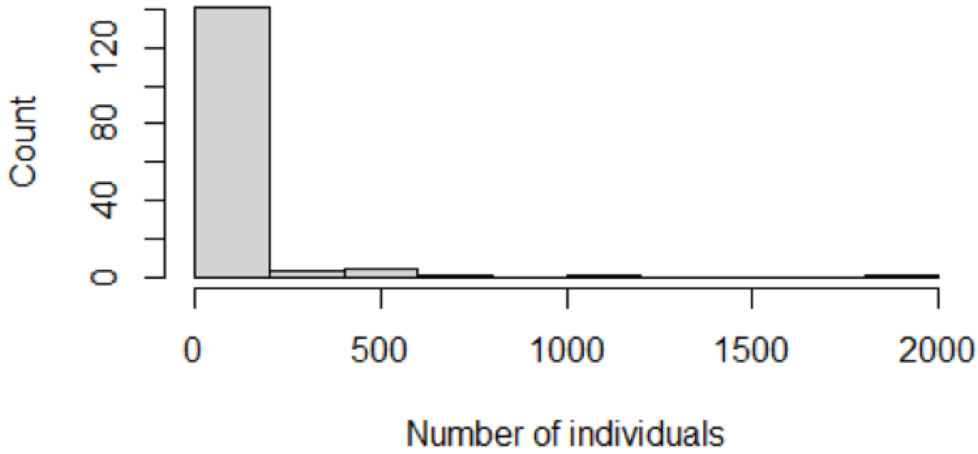

Figure 16a. Histogram of all flocks. Bar width is 200 individuals.

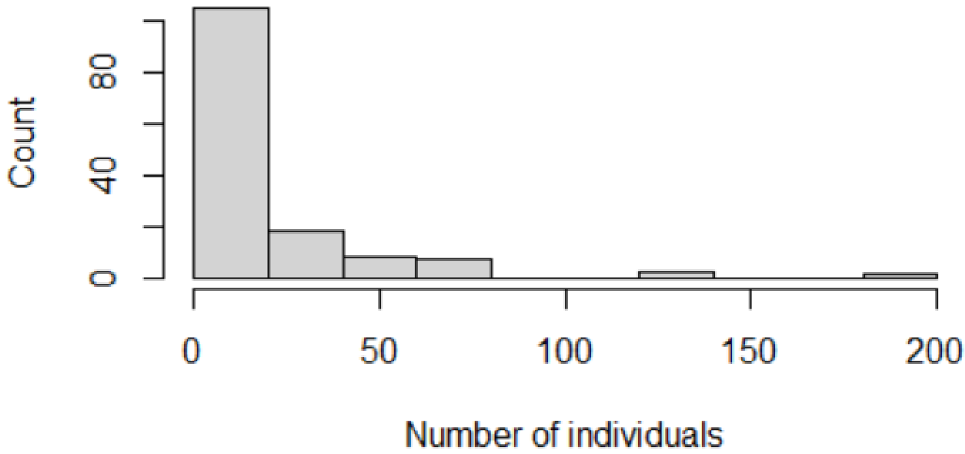

Figure 16b. Histogram of flocks containing 0-200 individuals, i.e. a blow-up of data in the leftmost bar in figure 16a.

The FID median for all flocks was 95 meters. It was higher for greylag goose flocks compared to barnacle goose flocks (figure 17), (94m and 56m respectively). The FID median for mixed flocks was 117 meters, which is closer to greylag goose flocks than barnacle (figure 17). Mean FID for all scaring trials was 105 meters. Mean FID for greylag goose flocks was 106 meters. Mean FID for barnacle goose flocks was 68 meters. Mean FID for mixed flocks was 116 meters. Non-parametric

Wilcoxon rank sum test with continuity revealed a significant difference between barnacle goose flocks and mixed flocks: p=0.0087.

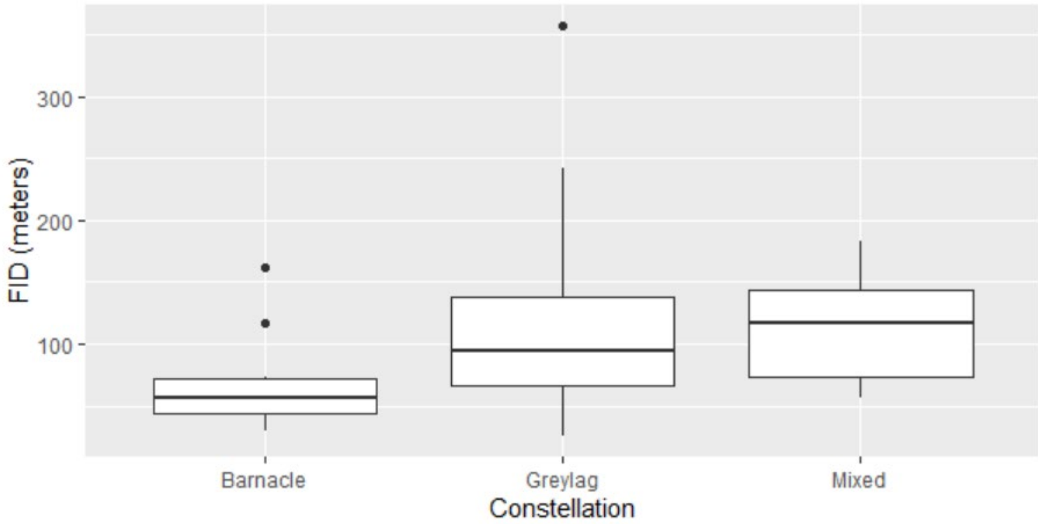

Figure 17. FID (median) by species constellation. Whiskers depict the median ± 1.5 the interquartile range. Values outside whiskers are considered as outliers and depicted as dots.*

Ordinal dates in correlation to FID turned out to show a negative rho of -0.2614 and to be significant (figure 18). The correlation of ordinal dates may however just be generalized to the actual data collection time frame, i.e., between 2021.02.12 and 2021.03.23. Flock size, expressed as number of individuals in the flock, returned a rho of 0.1364, but this was not significant (figure 19).

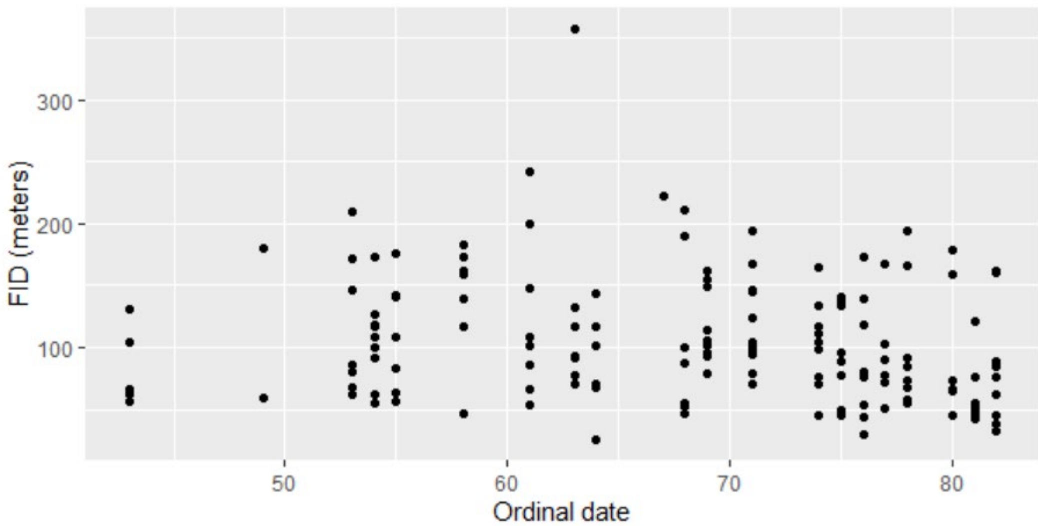

Figure 18. Scatterplot showing association between ordinal date and FID for all scaring trials. Two-tailed Spearman correlation test provided a rho of -0,2614 with p-value: 0.0012.

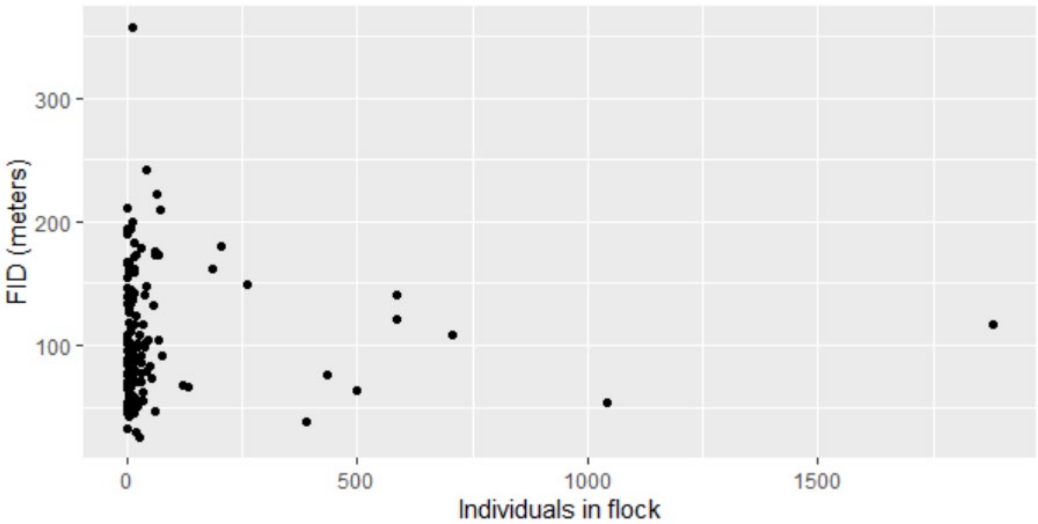

Figure 19. Scatterplot showing association between the number of goose individuals in a flock and FID for all scaring trials. Two-tailed Spearman correlation test provided a rho of 0.1364 with p-value: 0.0948.

4.1.1. Distance to nearest object

In direct contrast to the hypothesis, there was a slightly positive correlation between distance to nearest object and FID. When all scaring trials were included, rho was estimated at 0.1588 with a p-value of: 0.97. Also, when looking at greylag goose flocks and mixed flocks separately, rho was positive. But even constellation-wise, very high p-values were obtained, and these are shown in the captions to figure 20-23. The high p-values can be attributed to the correlation-tests being negatively one-tailed when looking at *distance to nearest object*. If the correlation-tests instead would have been two-tailed, the p-values would have been much lower. The motivation behind running negative one-tailed tests can be attributed to the hypothesis assuming a negative correlation.

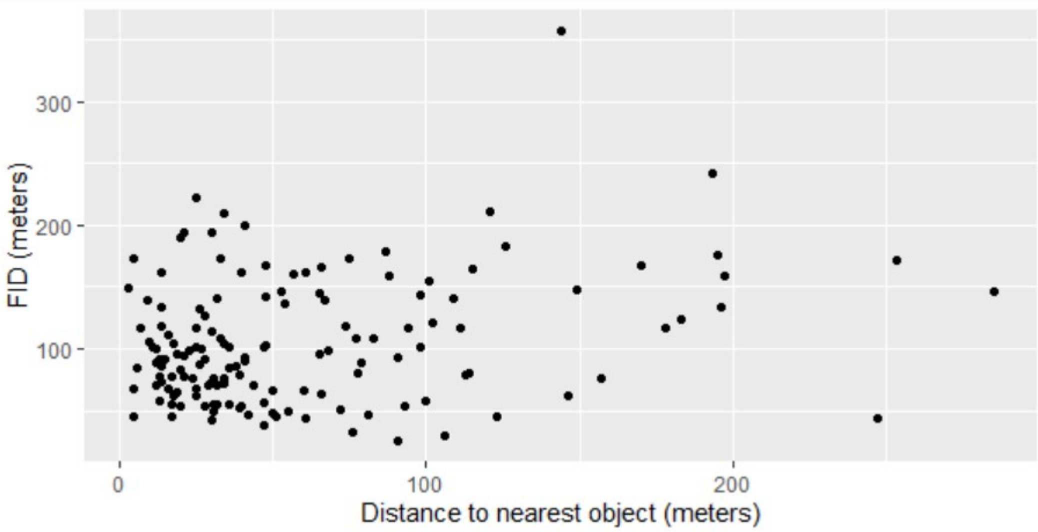

Figure 20. Scatterplot showing distance to nearest object and FID for all scaring trials. One-tailed negative Spearman correlation test provided a rho of 0.1588 and a p-value of 0.97.

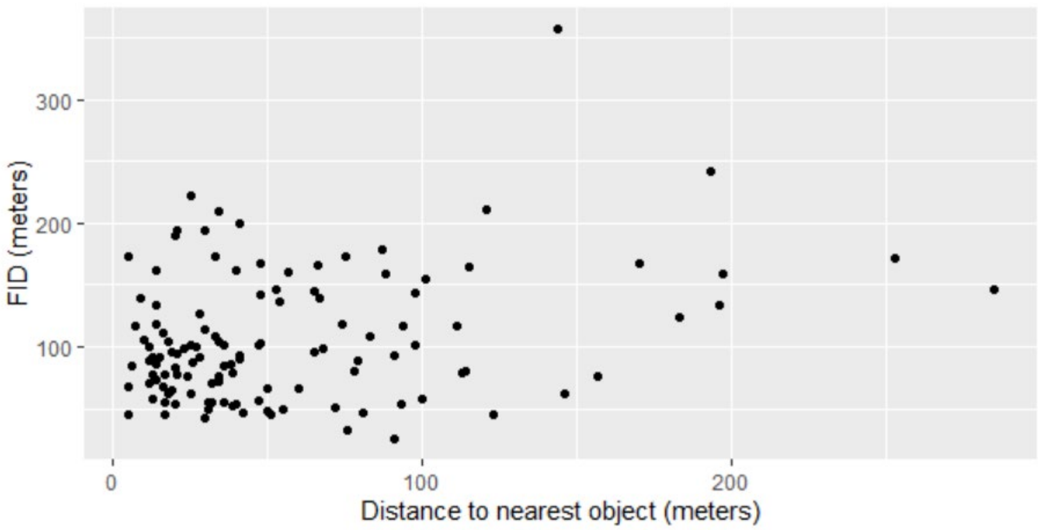

Figure 21. Flocks containing greylag geese but no barnacle geese. Other LGB species may be present in the flock. One-tailed negative Spearman test provided a Rho of 0.1722 and a p-value of 0.97.

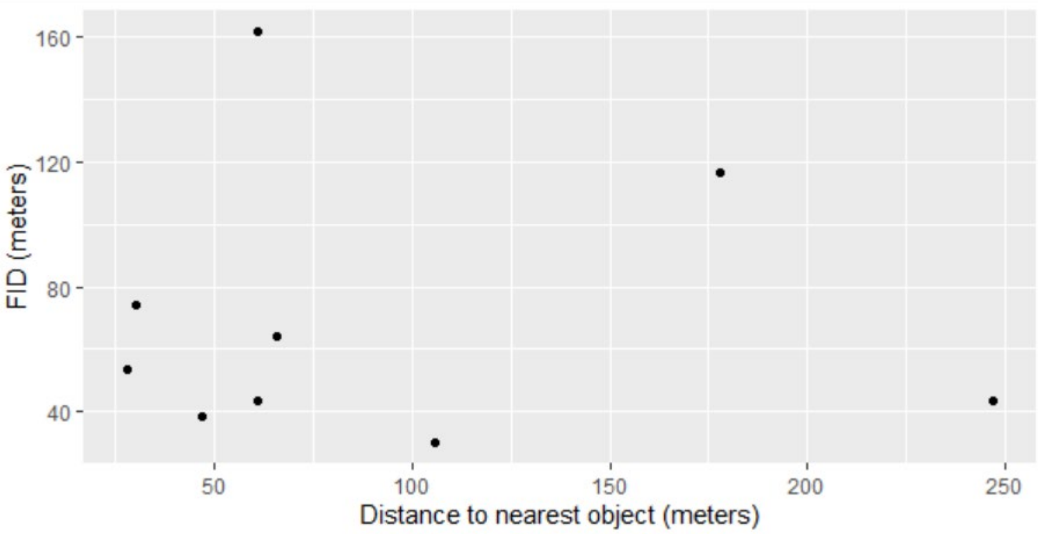

Figure 22. Flocks containing barnacle geese but no greylag geese. Other LGB species may also be present in the flock. One-tailed negative Spearman test provided a Rho of -0.0502 and a p-value of 0.45. Note the small sample size, n=9, for observations that contained pairwise observations of both variables.

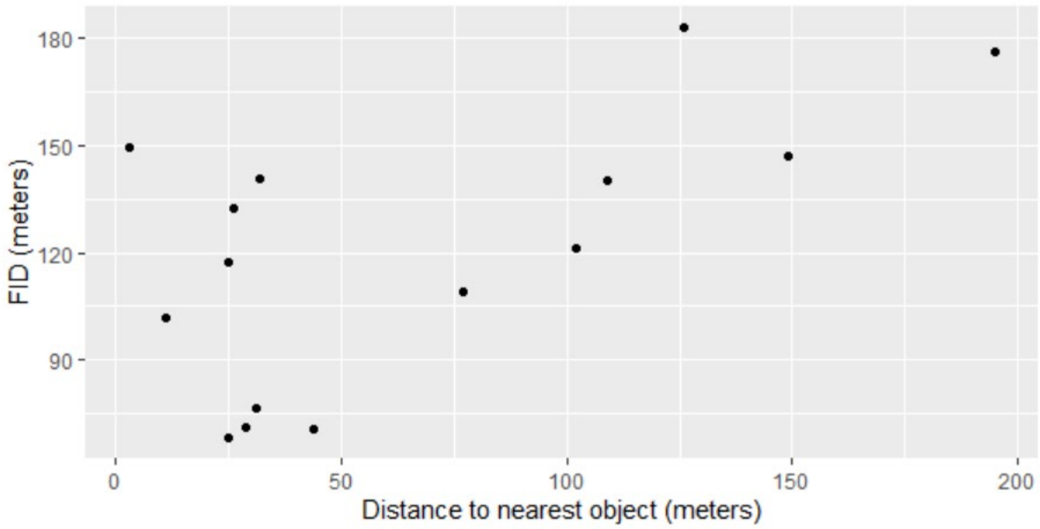

Figure 23. Flocks containing both greylag geese and barnacle geese, i.e., mixed. Other LGB species may also be present in the flock. One-tailed negative Spearman test provided a Rho of 0.4611 and a p-value of 0.958.

4.1.2. Correlation plots

The correlation matrix plots shown in figure 24 to 27 offer the possibility to compare several variables simultaneously, and it's also a way to detect multicollinearity between independent variables. In the correlation matrix plots, it's shown that *Average distance to nearest object* shows comparatively high correlation with *Distance to nearest object*. This is not surprising since *Average distance to object* takes objects in all cardinal directions into account and that one of them per se is *Distance to nearest object*, see section 2.3.2.

Size of the circles in figure 24 to 27, indicates, just as colour, the strength of the correlation.

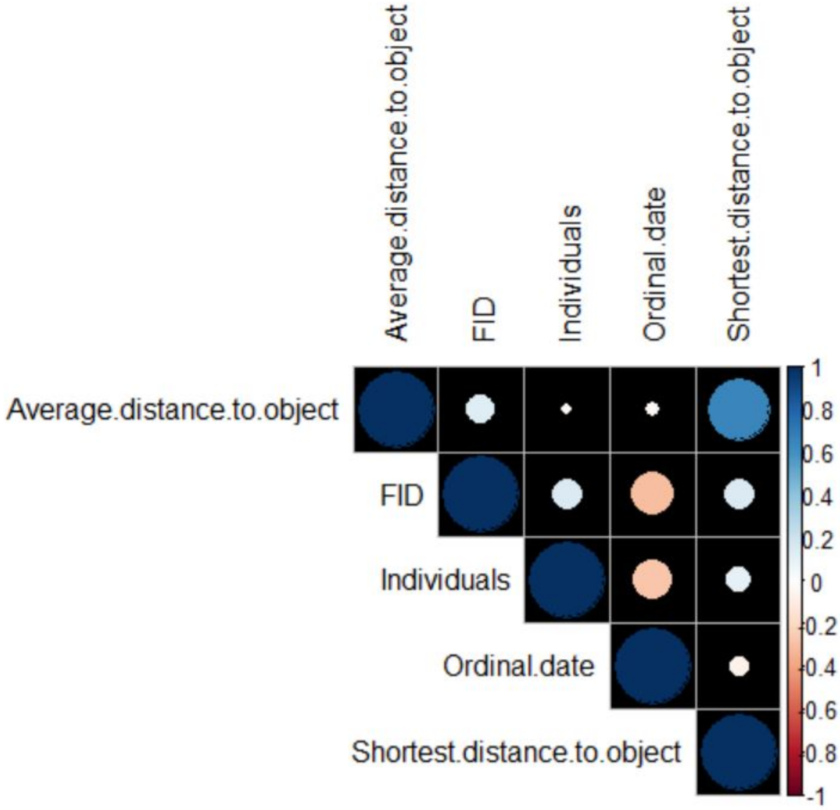

Figure 24. Correlation between variables for all scaring trials. The black background is just to distinguish it from the constellation specific correlation plots below. The matrix is based on two-tailed Spearman correlation coefficient tests.

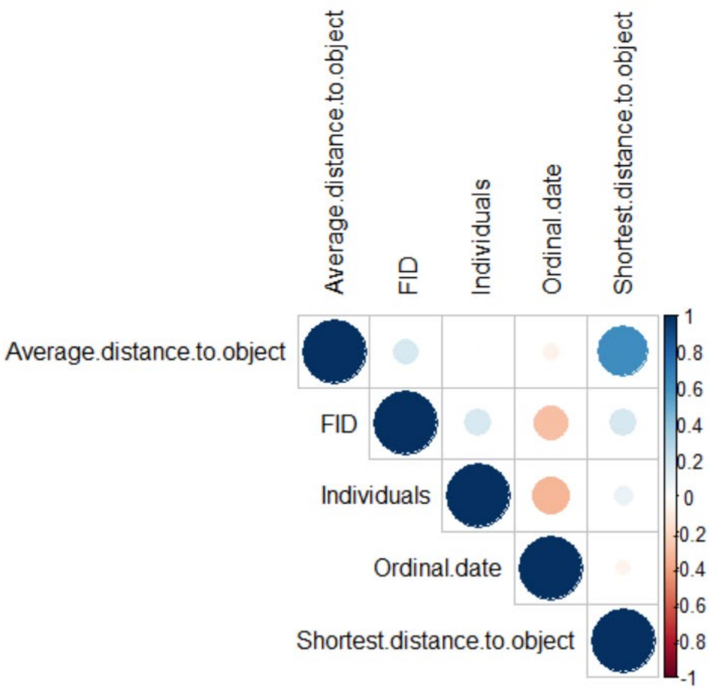

Figure 25. Correlation between variables in greylag goose flocks. The matrix is based on two-tailed Spearman correlation coefficient tests.

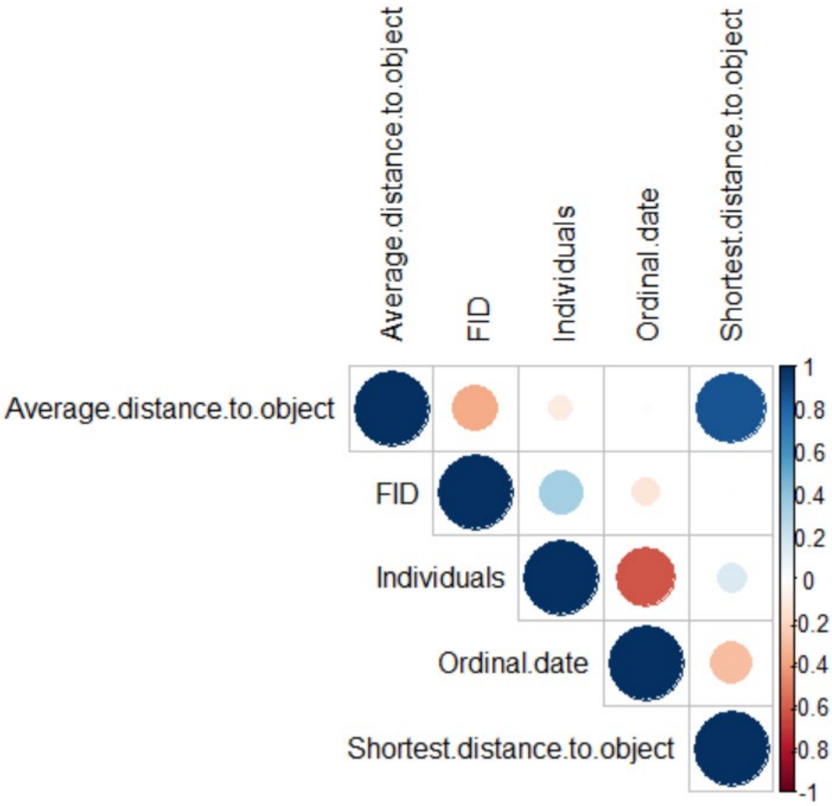

Figure 26. Correlation between variables in barnacle goose flocks. Keep the small sample size in mind, n=9. The matrix is based on two-tailed Spearman correlation coefficient tests.

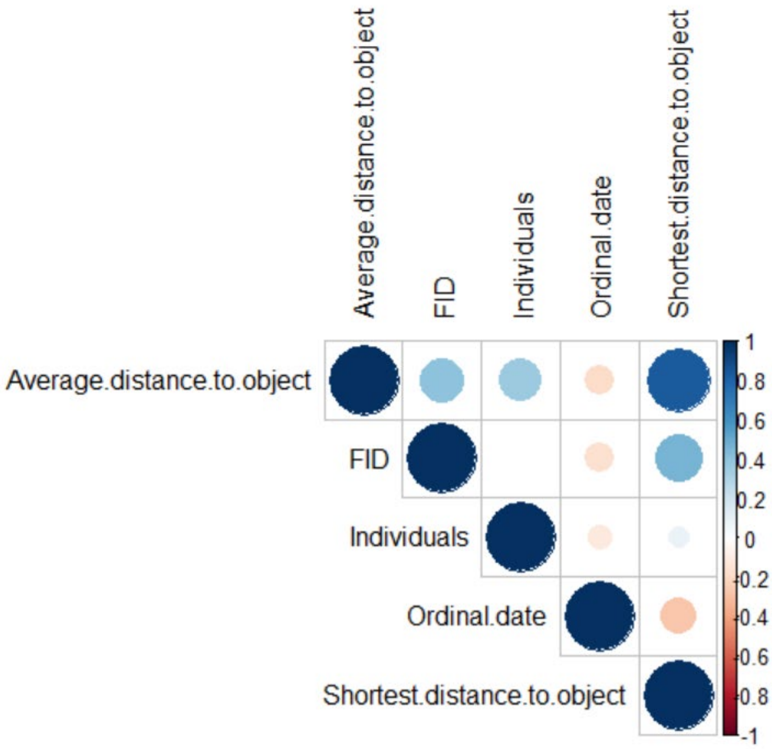

Figure 27. Correlation between variables in mixed flocks. The matrix is based on two-tailed Spearman correlation coefficient tests.

4.2. Linear models

Based on figures 20 to 23, the hypothesis that FID would show a negative correlation to nearest object, can be refuted. Even though the correlations for greylag goose and mixed flocks were positive, it's still interesting to inquire the coefficient *distance to nearest object* in a multiple regression with other variables, namely: ordinal date; flock size and flock constellation. P-values in the multiple regression are based on two-sided testing in contrast to the one-sided testing related to figure 20 to 23.

Stars next to p-values indicate levels of significance: <0.001=***, <0.01=**, <0,05=*. The coefficients that turned out to be significant were the intercepts for greylag goose flocks (table 3) and mixed T-goose (table 5) flocks and finally *Distance to nearest object* in greylag goose flocks (table 3).

Table 3. Coefficients of the multiple linear regression describing greylag goose flocks. FID-values have been logarithmically transformed in order to obtain normally distributed FID-values, see section 3.3.3.

Coefficient	Estimate	Std. error	P-value
Intercept	4.97	0.365	2e-16***
Distance to nearest object	0.002	0.0008	0.012*
Ordinal date	-0.008	0.004	0.08
Flock size (number of individuals)	0.004	0.002	0.135

Table 4. Coefficients of the multiple linear regression describing barnacle goose flocks. FID-values have been logarithmically transformed in order to obtain normally distributed FID-values, see section 3.3.3.

Coefficient	Estimate	Std. error	P-value
Intercept	4.006	2.348	0.149
Distance to nearest object	-0.0007	0.003	0.831
Ordinal date	0.0002	0.286	0.996
Flock size (number of individuals)	0.0004	0.0004	0.446

Table 5. Coefficients of the multiple linear regression describing mixed flocks. FID-values have been logarithmically transformed in order to obtain normally distributed FID-values, see section 3.3.3.

Coefficient	Estimate	Std. error	P-value
Intercept	4.536	0.664	2.82e-05***
Distance to nearest object	0.003	0.001	0.052
Ordinal date	0.0001	0.009	0.991
Flock size (number of individuals)	-0.0001	0.0003	0.74

The relative importance of *Distance to nearest object* can also be shown in linear multiple regression curves where all other variables are kept equal (figure 28), in this case at mean values for each variable in each constellation. Note that all variables from the tables above are included, also those that didn’t show any significance. As expected from the coefficients in table four, barnacle goose flocks show a negative correlation with FID, but this result should not be relied on since the p-value was >0.05.

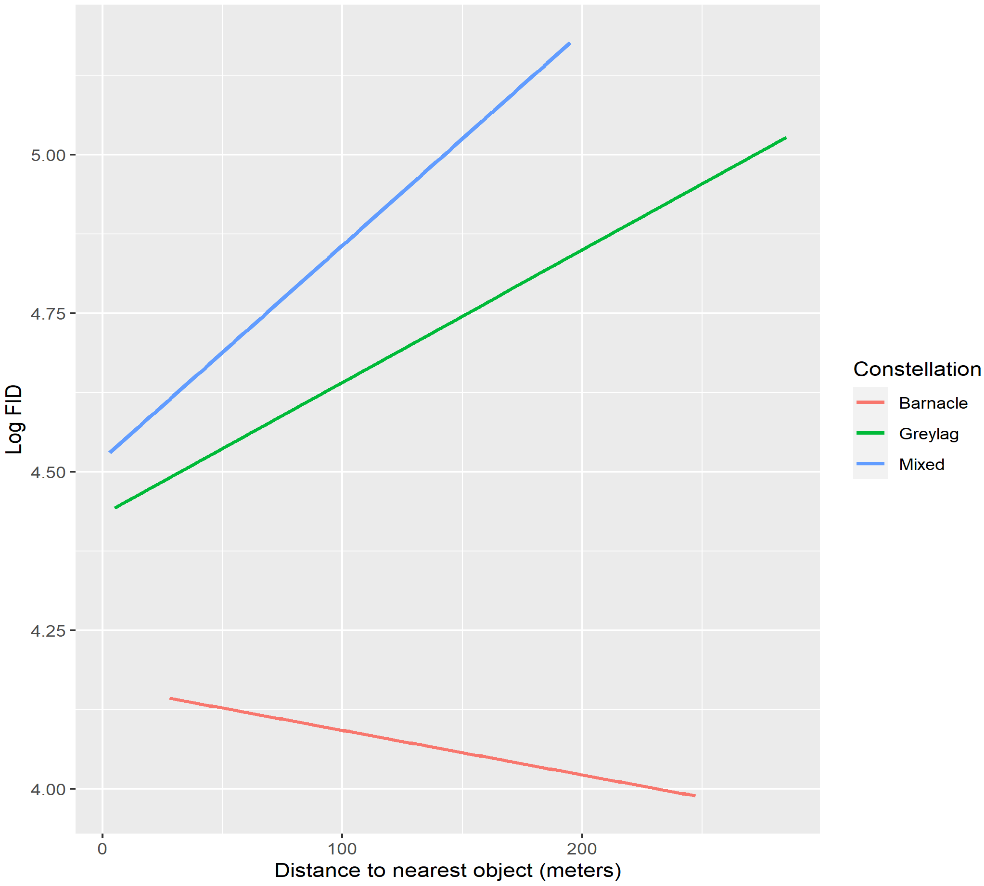

Figure 28. Linear model for all constellations using logarithmically transformed FID-values and the range of values for Distance to nearest object. Mean values for variables other than "Distance to nearest object" are used. The regression lines are expressed below.

Barnacle: y(log(FID))=-0.0007036*Distance to nearest object + 0.0003696*Mean number of individuals + -0.0001520*Mean ordinal date + 4.0062753 (Intercept)

Greylag: y(log(FID))=0.0020880*Distance to nearest object*+ 0.0040289*Mean number of individuals + -0.0055520*Mean ordinal date+ 4.9709891 (Intercept)

Mixed: y(log(FID))= 0.0033715*Distance to nearest object + -0,0001154 *Mean number of individuals + 0.0001126*Mean ordinal date + 4.5359580 (Intercept)

5. Discussion

Since the hypothesis was clearly refuted, a fairly large part of the discussion is devoted to reproducibility and validity issues.

5.1. Discussion of results

The hypothesis was that proximity to physical objects would show a negative association with FID-values among T-geese. On the contrary, there was a positive correlation between distance to nearest object and FID for greylag goose flocks and mixed flocks. Among barnacle geese, there was still a negative correlation between distance to nearest object and FID. But the small sample size of barnacle goose flocks, couldn't bring any significance to such correlation, see figure 22. In the multiple linear regression model of logarithmically transformed FID-values (figure 28), where several variables were considered, the relative effect of *Distance to nearest object* on FID decreased. But as none of the other variables in the multiple regression were significant, no conclusion of the interplay between *Distance to nearest object* and other variables can be made.

Field size and visibility range correlate positively with forage selection among geese in several studies. The general trend is that geese prefer agricultural fields of larger size over smaller fields (Rosin et al. 2012; Fox et al. 2017). The guidelines from NVV and SLU Viltskadecenter, bring up that incorporation of physical objects such as cover hedges and unharvested stalks of crops can be utilized as a strategy to avoid damage on cropland from LGB (Månsson et al. 2015). The results from this thesis don't support that geese are more easily scared in such habitats. But even though the results showed that scaring isn't facilitated by proximity to physical objects, it could still be the case that T-geese cause less damage in fields with such features as they may still prefer to land on fields far from these kind of physical objects. The method applied in this thesis has only inquired where geese were already present, i.e., not inquired which fields that were avoided by T-geese. No efforts were made to inquire whether T-geese significantly avoid fields as a function of distance to physical objects from the very beginning.

Even though it doesn't answer the hypothesis, it was interesting to see that barnacle goose flocks showed a significantly lower FID than mixed flocks (figure 17). This is logical if one considers that barnacle geese are far more protected from hunting than greylag geese in the EU and Sweden (The European Parliament and the Council of the European Union 2009/147). It's therefore anticipated that barnacle show less sensitivity to humans than do greylag geese. Even though the difference between barnacle goose flocks and mixed flocks turned out to be significant, one should keep the small sample size of barnacle goose flocks in mind (n=10). If it holds true that mixed flocks of T-geese and other LGB are more easily scared compared to single species flocks, this can have obvious scaring management implications. If farmers start preferring mixed flocks rather than single species flocks on their fields, due to the facilitated scaring potential, it could also mean that the task for inspectors working at CAB becomes harder. This is since reimbursement from CAB is paid differently by species and a part of the CAB inspector's job is to determine which species that has caused the damage (Månsson et al. 2018; SFS 2001:724). Monträs-Janer (2021) also points out that it's desirable that culprit species are always specified in the damage reports. Then it'd be easier to predict in which areas that conflicts between farming interests and T-geese may arise (ibid.). However, FID may also vary between regions, for example did similar scaring trials around Kristianstad show that barnacle goose flocks didn't turn out to exhibit significantly lower FID-values than other constellations (appendix 2).

A free reflection during scaring trials of barnacle goose flocks, was that these flocks were more restless than greylag flocks/individuals. This wasn't measured, but during scaring trials of barnacle goose flocks, the scared individuals often just started to circulate around me after flight initiation. This contrasts with greylag geese which I found much more determined in their flight direction after flight initiation. No general conclusion can however be based on this unsystematic observation. But given the problem of moving around geese between crop fields causing conflicts between farmers (Månsson et al. 2015; Månsson et al. 2018), it stresses the needs to understand what they do and where they head after being scared. Related to my own research questions, it would be interesting to see how far T-geese fly after scaring as a function of distance to physical objects and patchiness of the landscape.

Habituation to scaring devices among LGB, is one of the main issues in scaring strategies and management of such populations (Månsson et al. 2015; Fox et al. 2017). Habituation can be described as an animal learning to not respond to a stimulus (Raven et al. 2011). Even if the animal initially has genetically adapted instincts to respond to a specific stimulus, the response may decrease if the stimulus repeatedly doesn't affect fitness positively or negatively (Raven et al. 2011). Thus, when stimuli, e.g., scarecrows, or physical objects such as trees or topography, are exposed to a goose, the initial response of the goose might be strong, but as they get repeatedly exposed to it, the weaker the response becomes, which is the process of habituation. This could be elaborated much further, but it emphasizes the need that visual stimuli such as physical objects, eventually must imply fitness-reducing/lethal attacks if geese are not to habituate to physical objects. A potential explanation to why the hypothesis was refuted might be that T-geese in the study area have encountered too few attacks from predators such as foxes that depend on physical objects and patchiness of the landscape. Thereby visibility range isn't as important as it is for other goose populations that have been more frequently exposed to physical objects as an agent of natural selection.

5.1.1. Agroecological approach

So far, the discussion might seem a bit reluctant to acknowledge that proximity to objects couldn't be associated with higher FID-values. This might stem from agroecology's encouraging view of patchiness and more physical objects in the agricultural landscape (Thies & Tscharntke 1999; Wezel et al. 2014). The belief in agroecology is that such landscape features increase the interactions and food webs between biotopes of intense agricultural productivity, biotopes of reduced human disturbance, and natural ecosystems. Eventually such an approach is believed to contribute to ecological intensification that depends less on external inputs and fossil fuels (Tittonell 2014; Wezel et al. 2014; Gliessman 2015).

Gliessman (2015) suggests five steps of conversion to agroecological food systems. And as the name "food system" implies, this includes looking beyond agroecosystems themselves, and to also consider social and economic issues. The first three levels of agroecological conversion consider sustainability within agroecosystems (Gliessman 2015). The hypothesis of this thesis is typically an issue that's regarded within conversion level one to three. Level four, on the other hand, moves beyond farm level, as its goal is to: "Re-establish a more direct connection between those who grow the food and those who consume it." Gliessman (2015, p. 348). Although the data collected for this thesis didn't aim to reveal any possibilities of reaching level four, it's still interesting to consider goose management on level four. One way to do so, is to look at how the public (consumers in Gliessman's definition of level four) view geese. This has been done by Eriksson et al. (2020). By random sampling, a survey was e-mailed to adult citizens living in the goose rich municipalities of Örebro and Kristianstad. The aim was to reveal attitudes towards geese and to find predictors of acceptance towards geese. One of the results was that 71 % of the respondents in Kristianstad and 60 % of the respondents in Örebro were positive to have geese in Sweden (Eriksson et al. 2020). However, 36 % of the respondents in Kristianstad and 48 % of the respondents in Örebro thought that the numbers of geese were too high in their home municipality (ibid.). Eriksson et al. (2020) wonder if this may be a result of geese being part of the culinary traditions of Scania, and that people are more used to geese in Kristianstad than in Örebro. In areas where geese are more profoundly considered a local pest and a problem to the public on beaches, parks, golf courses etc., farmers could connect with consumers by telling them how they work to hamper damage and disturbance to humans from geese on a landscape level. But as Gliessman points out, this requires short links between producers and consumers (2015). In areas where geese are considered more problematic by the public, consumers should be more willing to pay attention to farming practices that aim to reduce goose populations on a regional scale. As Eriksson et al. (2020) show, acceptance towards geese differ depending on geographical area. Hence, the communication and connection between farmers and consumers could be differently successful depending on the region and the magnitude of how the pubic perceive geese as a nuisance.

Finally – even if an agroecological approach of patchiness and ecological intensification of agroecosystems, would be successful to combat geese as a pest, there would still be challenges. Notably because the general prediction by the European Environment Agency (EEA) (2019) is that agricultural productivity in southern Europe will be worse affected by climate change than in northern Europe including Sweden. EEA believes that this might increase the relative importance of northern European countries, e.g., Sweden, for the food supply of entire Europe. In that perspective, there will likely be stronger incentives to use more external inputs and relying less on agricultural diversification to combat geese as a pest in Sweden. Wezel et al. (2014) also disclose a pattern of agroecological practices being less disseminated in naturally fertile agricultural areas with high productivity. If Sweden's relative importance for Europe's food security increases, it could lead to short term productivity intensification of Swedish agriculture. In such case, agroecological practices are less likely to be favoured in Sweden. Instead, it's more likely that more direct methods such as direct killing of geese and scaring measures based on intensive supply of external inputs, e.g., liquified petroleum gas canons or drones, are favoured. Such rather direct measures would not demand the redesign of conventional agroecosystems that agroecological practices imply. Direct killing or scaring through external inputs may not be environmentally harmful in themselves, but with agroecological practices many other sustainability benefits are enhanced too. Not at least since habitat destruction has been the main driver of biodiversity loss in the last century (IPBES, 2019). For farmland birds, the trends have been particularly adverse since 1980 (Pan-European Common Bird Monitoring Scheme, 2021), see figure 29. Negative side effects on farmland bird species/populations from increased hunting or use of external inputs such as liquified petroleum gas canons to regulate goose populations, must be carefully evaluated. Hopefully, the Birds Directive should probably serve to not let such side effects become too adverse on farmland birds other than geese.

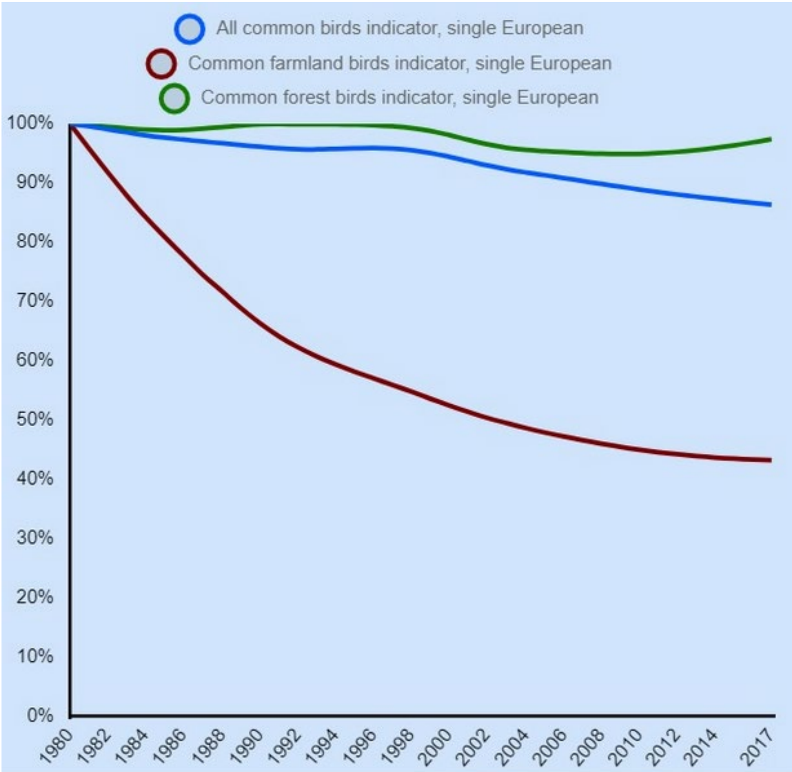

Figure 29 (Used under publisher's permission). Species abundance indicator for birds grouped by habitat. (Pan-European Common Bird Monitoring Scheme 2021).

5.2. Methodological discussion

5.2.1. Reproducibility

Since the method used for this thesis utilized an observational design with uncontrolled variables, it's not possible to repeat the sampling procedure and obtain the same results. Mainly because it cannot be determined exactly where in the landscape T-geese will be present, i.e., which agricultural/crop fields they would be in and how closely they would be situated to physical objects.

However, some methodological facets could easily be repeated in other scaring trials:

- The area where scaring trials took place. Even though it's not possible to use exactly the same scaring sites, one could set up rules to carry out scaring trials in a certain vicinity of scaring trial sites. All coordinates of scaring sites are found in appendix 4.

- The seasonal and diurnal time frame when scaring trials were performed.
- The appearance and walking pace of the person scaring the flocks.
- To only conduct scaring trials when the visibility range is minimum 500 meters for the human naked eye.
- To only conduct scaring trials on agricultural land.

5.2.2. Validity due to practical issues

Practical validity issues of obtaining correct FID-values concern whether actual methods and materials could measure FID and distance to object in a precise way. During the data collection phase, I thought about many different validity issues. Below are the ones that I personally found most striking:

- The distance between the car/WP1 and the flock differed quite a lot. The longer distance from the flock I had to park the car, the longer time it usually required to count the geese. The time I was visible to individuals in the flock before I approached the flock might have had an impact on FID. But this was not measured.
- Due to muddiness and water saturation in some fields it was hard to walk straight between WP1 and WP3 (figure 30). The longer detour I had to make to reach WP3, the less precise could I be in reaching the *de facto* spot of flight initiation. Fields that were easier to walk on should therefore show better precision for reaching WP3 and eventually FID.
- Additionally: In fields that were extremely muddy (figure 30), walking pace towards the geese was slowed down. Walking speed per scaring trial was not measured.
- At WP3 the slope of the ground varied. This made it sometimes hard to horizontally stabilize the 70 cm stick that the laser gauge was put on. Scaring trials at sites with less slope, probably show better precision for measuring distance to objects.
- When the conditions were wet and muddy at WP3, the 70 cm stick tended to slightly penetrate the ground during measurement of distance to objects. This probably yielded shorter distances to objects as the measuring height to objects was lower than 70 cm. Ultimately measurements in wet and muddy fields yielded lower values of distance to objects than was the case.
- I couldn’t be sure how many times I scared the same goose individuals. Although I had a method for avoiding scaring the same individuals the same day or two days in a row (see section 2.1 and 2.2), this might still have occurred. A result of this could be habituation among the scared T-

geese towards the scaring trials themselves. A way to test for possible habituation and the risk of scaring the same goose individuals the same day, could have been to test if there were significant differences in FID depending on the time of the day. No such tests were however run. The comparatively large geographical range of scaring sites (figure 8) should at least serve to diminish the risk of scaring the same goose individuals too frequently.

Figure 30. This is what the boots looked like just after some of the scaring trials. The muddiness of the field and the weight of the boots had an obvious impact on walking speed towards the flocks.

To summarize, some validity issues regard the accuracy of FID-values, whereas some regard accuracy of distance to physical objects from WP3. Better precision of FID-values could be obtained by harnessing goose individuals equipped with GPS-collars. Better precision of measuring distance to objects from WP3 and general landscape features could be solved with GIS or other mapping techniques. Of course, it would also have been possible to measure distance to objects in other directions than the four cardinal directions. But to measure which was actually *the closest* object in 360° around WP3 would have been very time-consuming given the materials at hand. The number of scaring trials performed, i.e., sample size, would have suffered dramatically.

Finally, it's worth to reflect on whether FID is a good indicator of how easily T-geese are to scare and prevent from causing damage on crops. Many other options are theoretically possible to measure how T-geese react to scaring or disturbance. For instance, how they fly away after a conducted scaring trial, or how and in how big groups they regroup after a scaring trial. If a scared flock is split into many smaller subgroups, the damage on crops is probably smaller and not as locally adverse. Not surprisingly, farmers are more inclined to report crop damage to CABs when they encounter larger rather than smaller flocks on their cropland. (Montras-Janer 2021).

5.2.3. Data treatment and potential improvement

Division and definition of flock constellations could have been done differently. Flocks constellations could also have been divided by:

- The first species that initiated flight could have defined the constellation. But this would also imply that LGB species other than greylag or barnacle would constitute flock constellations (figure 15).
- Flocks could have been defined by the numerically dominant species in the flock.

Even though FID in my case only caught the first flight initiating individual/s, it doesn't reveal the flight initiation distance for the subsequent goose/LGB individuals in the flock. It might be that the first flight initiating individuals/s, initiated flight much earlier than the subsequent individual/s. but the data collected here, doesn't reveal such gradual FID of individual/s within the flock. Such an approach would require spending far more time on each scaring trial. Probably, it'd also require to be more than one person in field: One who performs the actual scaring trials/walking, and another person who counts the species and their numbers of individuals for the gradually yielded FID-values. Large flock size should imply that it's more likely to encounter some individual/s in the flock that exhibit high FID-values. Simply because there is higher potential of variation of individual FID-values in a flock with many individuals compared to flocks of fewer individuals. . There was a positive correlation between flock size and FID, but it was not significant (figure 19). Perhaps this shows that geese are more confident and not as easily disturbed when they occur in larger groups, and that's why there's not a stronger correlation and effect of flock size on FID.

Finally, many more statistical tests and graphs could have been run and shown. For instance, the correlation tests were only run with the untransformed FID-values, whereas the linear modelling, uses the logarithmically transformed values. The correlation tests, could of course too, had been run and shown with the logarithmically transformed FID-values, too. The data presented in the results don't pay any respect to qualitative features (e.g., hedge or tree or car embankment) of the physical objects. But actually, this was registered during the data collection, too.

Parametric Anova or Ancova could then have been applied on the logarithmically transformed FID-values to see if there were any qualitative differences between objects. For instance, to see how physical objects of agroecological characteristics, e.g., perennials differed from other physical objects, e.g., road embankments The data set with qualitative descriptions of the physical objects is however included in appendix 1. I do happily share information about how the categorization of objects was done.

6. Conclusion

Geese are known to prefer large agricultural fields and search for fields that provide good visibility. Based on these adaptations in geese, this thesis set out to test if distance to physical objects had an influence on how easily geese are scared on agricultural land.

In February and March 2021, 151 scaring trials were performed on flocks of greylag and barnacle geese in Scania. The hypothesis was that barnacle and greylag geese would be more sensitive to scaring/disturbance if they were closer to physical objects such as trees, road embankments and topographical slope. The hypothesis was clearly refuted. Flocks that contained greylag geese but no barnacle geese, and mixed flocks of barnacle and greylag geese were even less sensitive to scaring/disturbance when they were closer positioned to physical objects. Flocks containing barnacle geese, but no greylag geese, were more easily scared when they were closer to physical objects, but this wasn't significant, and no inference can be drawn to the population.

Validity issues during data collection were present as the accuracy of measuring FID and distance to objects could sometimes be questioned. For instance, it was harder to measure these variables when it was wet and muddy. A more accurate way to measure distance to objects would probably be with GIS. All coordinates of the scaring trials are found in appendix 4 for possible GIS analysis.

Since agroecology aims to balance different pest problems against each other, the idea of a patchier agricultural landscape should still not be dismissed in a holistic analysis of different pest problems. As such, these landscapes may provide many other ecosystem services and can boost ecological intensification in agriculture. But given how barnacle geese and greylag geese behave in Scania during the data collection time frame, there's no evidence to say that a patchy landscape with more physical objects facilitate scaring of geese.

Potential future research questions from an agroecological approach towards the issue of geese as a pest in agriculture include:

- Do geese, that are part of different food webs, exhibit different sensitivity to distance to physical objects? I.e., How important are predator attacks on suspiciousness/sensitivity to physical objects and patchiness of agricultural landscapes among geese?

- In regions where geese are perceived as a nuisance in parks, golf courses etc. by the public: What's the potential of farmers communicating to the public/consumers how they work to decrease local goose pressure. Can such communication contribute to level four of agroecological conversion? I.e., can such communication contribute to connect those who produce the food and those who consume it?

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Appendix 1

Below is the entire dataset except coordinates that instead are found in appendix 4. Remember that just a few of the variables were finally used in the analysis. Please zoom in to fullest extent to read the observations in the table.

WP in BaseCamp	Date	Time	Route	Site	Name (ELIAS)	Weather/ precipitation	Scaring measWithout reache	Number of whooper swans whooper	Number of mute swans	Number of greylag	Number of barnacle	Number of tundra bean	Number of taiga bean	Number of canada	Number og greater white-fronted	Number of pink-footed	Number of bean unspecified	Total number of LGB	Flight initiation order	FID	wind speed	wind direction	flight direction bearing	walking direction bearing	Crop type	Crop stage	Height of crops	FID according to laser gauge avstånds mätare	Avstånd mellan WP 1 och 3 enl. avstånds mätare	M to object N N	Object class N	M to objecto E	Object class E	M to object S	Class of object S	M to object W	Class of object W
1-3	2021-02-12	10:41:00	Southern	Vellinge sö	Elias	Sunny	walking			60	8							68	1. greylag	103.85172	3.6	N	250	204	winter wh	growing	0-15	NA	NA								
4-6	2021-02-12	12:06:00	Southern	Reningsve	Elias	Sunny	walking			36								36	NA	62.738419	3	N	161	230	without re	growing	16-30	45	NA								
7-9	2021-02-12	12:30:00	Southern	Klagshamn	Elias	Sunny	walking			4								4	NA	131.56987	4.1	N	350	356	winter wh	growing	0-15	127	NA								
13-15	2021-02-12	14:04:00	Eastern	Södra San	Elias	Sunny	walking			125	10				15			150	1. greylag	66.517529	3.2	NV	310	253	winter wh	growing	0-15	63	NA								
16-18	2021-02-12	14:32:00	Eastern	Södra San	Elias	Sunny	walking			10	10				550			570	1. greater	56.692528	4	NV	150	135	ley	growing	0-15	54	NA								
25-27	2021-02-18	10:38:00	Northern	Alnarp	Elias	Cloudy	walking				14							14	NA	59.555389	5.5	SO	81	52	winter cer	growing	0-15	68	88								
28-30	2021-02-18	11:34:00	Northern	Norra Lom	Elias	Cloudy	walking			5	200							205	1. greylag	180.14627	4	O	174	190	winter cer	growing	0-15	85	207								
55-57	2021-02-22	12:22:00	Southern	Klagshamn	Elias	Sunny	walking			2								2	NA	146.24837	3.5	S	160	47	winter wh	growing	0-15	140	153	520	house	733	house	285	Without re	428	tree
58-60	2021-02-22	12:55:00	Southern	Reningsve	Elias	Sunny	walking			7	115							122	1. barnacle	68.150729	2.6	SO	160	265	winter cer	growing	0-15	63	105	76	tree	116	previous y	25	tree	NA	NA
61-63	2021-02-22	13:07:00	Southern	Reningsve	Elias	Sunny	walking			11								11	NA	80.217377	2.8	S	63	240	without re	growing	16-30	66	NA	114	vass	130	tree	Without re	Without re	173	vass
64-66	2021-02-22	13:39:00	Southern	Tygelsjö	Elias	Sunny	walking			5								5	NA	62.134383	2.8	S	160	150	winter wh	growing	0-15	77	132	146	NA	Without re	Without re	Without re	Without re	Without re	Without re
67-69	2021-02-22	14:59:00	Southern	Höllviken	Elias	Sunny	walking			17								17	NA	86.476186	2.5	SO	50 & 283	314	ley	growing	0-15	80	152	14	last year's	48	last year's	Without re	Without re	230	car emban
70-72	2021-02-22	15:26:00	Southern	Rängs san	Elias	Sunny	walking			15								15	NA	172.08383	2.5	SO	120	283	winter cer	growing	0-15	155	243	609	house	Without re	Without re	253	house	house	360
73-75	2021-02-22	15:51:00	Southern	Rängs san	Elias	Sunny	walking			72								72	NA	210.28692	2.8	SO	121	119	winter cer	growing	0-15	NA	235	Without re	Without re	72	last year's	34	tree	Without re	Without re
85-87	2021-02-23	10:29:00	Free	Vismarslöv	Elias	Cloudy	walking			75								75	1. greylag	91.095437	3.2	SV	145	147	winter cer	growing	0-15	85	170	25	topograph	15	topograph	111	topograph	79	topography
88-90	2021-02-23	11:05:00	Free	Genarp	Elias	Cloudy	walking			8								8	NA	116.24958	2	SV	327	340	winter cer	growing	0-15	110	127	253	tree	120	house	120	car emban	111	topography
91-93	2021-02-23	11:22:00	Free	Genarp	Elias	Cloudy	walking			27					4			31	unknown	108.94186	0	NA	340	9	winter cer	growing	0-15	100	166	450	tree	60	topograph	265	car emban	33	tree
94-96	2021-02-23	12:05:00	Free	Utkanten a	Elias	Cloudy	walking			20								20	NA	173.35298	2.7	V	multiple	24	winter cer	growing	0-15	190	NA	5	topograph	16	topograph	92	topograph	101	topography
97-99	2021-02-23	14:33:00	Free	Svarte	Elias	Cloudy	walking			12								12	NA	55.712234	1.4	S	265	13	winter rap	growing	0-15	43	148	532	topograph	31	topograph	85	topograph	312	tree
100-102	2021-02-23	14:55:00	Free	Svarte	Elias	Cloudy	walking			4								4	NA	62.051814	2.5	SV	173	211	winter cer	growing	0-15	53	128	92	topograph	74	topograph	18	topograph	46	topography
103-105	2021-02-23	15:38:00	Free	Skivarp	Elias	Cloudy	walking			6								6	NA	127.17028	1.2	SO	157	146	winter cer	growing	0-15	125	NA	90	tree	28	topograph	38	topograph	65	car emban
106-108	2021-02-23	16:15:00	Free	Önnarp	Elias	Cloudy	walking			5								5	NA	117.61317	1	S	156	162	winter cer	growing	0-15	121	245	96	topograph	97	topograph	200	topograph	74	bushes
109-111	2021-02-23	16:45:00	Free	Önnarp	Elias	Cloudy	walking			15								15	NA	100.57450	0	NA	multiple	109	sugar beet	harvested	0	NA	177	109	tree	179	topograph	30	topograph	12	topography
112-114	2021-02-24	10:23:00	Northern	Bjärred	Elias	Cloudy	walking			5	700							705	unknown	108.86060	4.2	S	multiple	150	without re	growing	0-15	112	264	131	topograph	142	reed aggre	172	topograph	77	topography
115-117	2021-02-24	11:14:00	Northern	Borgeby	Elias	Cloudy	walking			15								15	NA	142.62507	4.5	S	262*	230	sugar beet	harvested	0	134	312	116	topograph	NA	topograph	48	topograph	400	topography
118-120	2021-02-24	13:17:00	Northern	Barsebäck	Elias	Cloudy	walking			51	10							61	NA	176.06015	4.8	SV	97	24	winter wh	growing	0-15	125	180	195	car emban	242	car emban	196	car emban	378	house
121-123	2021-02-24	13:40:00	Northern	Barsebäck	Elias	Cloudy	walking			50								50	NA	82.646782	3	S	66	142	winter cer	growing	0-15	NA	82	68	car emban	47	reed aggre	20	topograph	54	topography
124-126	2021-02-24	14:48:00	Northern	Löddeköpi	Elias	Cloudy	walking			35	550							585	1. greylag	140.07894	4	SV	282	18	potatoes	harvested	0	124	185	109	topograph	185	topograph	170	topograph	Without re	Without re
127-129	2021-02-24	15:51:00	Northern	Borgeby	Elias	Cloudy	walking			7								7	NA	56.444153	4	SV	150 & 260	14	winter cer	growing	0-15	55	86	67	topograph	92	topograph	57	topograph	47	car emban
130-132	2021-02-24	16:25:00	Northern	Borgeby	Elias	Cloudy	walking				500							500	NA	64.146518	2.8	S	Multiple	360	without re	growing	0-15	NA	335	66	tree	186	reed aggre	90	reed aggre	73	reed aggre
133-135	2021-02-27	10:01:00	Eastern	Getinge	Elias	Sunny	walking			70								70	NA	173.76746	7.5	V	315	176	ley	growing	0-15	NA	263	102	topograph	187	tree	148	NA	75	car emban
136-138	2021-02-27	10:50:00	Eastern	Gårdstång	Elias	Sunny	walking			15								15	NA	159.64447	5.5	V	5	118	Klöverley	growing	0-15	159	237	197	tree	259	tree	269	vindkraftv	512	tree
139-141	2021-02-27	12:03:00	Eastern	Gårdstång	Elias	Sunny	walking	7		6								13	1. greylag	138.82930	6	V	19	276	winter cer	growing	0-15	109	237	67	topograph	83	topograph	243	car emban	330	halmbal
142-144	2021-02-27	12:50:00	Eastern	Gårdstång	Elias	Sunny	walking			60								60	NA	46.837087	5	V	Fairly diver	344	Probably u	growing	15-30	55	NA	55	tree	42	car emban	73	house	146	tree
145-147	2021-02-27	15:12:00	Eastern	Harlösa	Elias	Sunny	walking				1880							1880	NA	116.68872	5.8	V	Multiple	226	winter cer	growing	0-15	90	334	214	tree	180	topograph	178	tree	213	tree
148-150	2021-02-27	15:39:00	Eastern	Revingeby	Elias	Sunny	walking			15	2							17	unknown	183.24252	4.5	V	243	180	Clover ley	growing	0-15	NA	247	243	topograph	126	topograph	179	tree	153	topography
151-153	2021-02-27	16:05:00	Eastern	Revingeby	Elias	Sunny	walking			6								6	NA	161.99140	4.3	V	246	190	winter cer	growing	0-15	151	174	36	dike med f	209	house	314	tree	14	dike med p
154-156	2021-03-02	09:24:00	Southern	Klagshamn	Elias	Cloudy	walking			8	35							43	1. barnacle	147.14557	2	NV	246 vitk &	96	winter cer	growing	0-15	118	500	219	tree	Without re	Without re	149	tree	524	house
157-159	2021-03-02	10:02:00	Southern	Klagshamn	Elias	Cloudy	walking			2								2	NA	54.038468	2	NV	178	195	winter cer	growing	0-15	43	116	Without re	Without re	238	tree	795	house	20	reed aggre
162-164	2021-03-02	10:43:00	Southern	Skumparp	Elias	Cloudy	walking			3								3	NA	108.28250	2.7	NV	108	46	winter cer	growing	0-15	95	223	83	avfall	434	tree	178	car emban	148	car emban
165-167	2021-03-02	11:24:00	Southern	Gessie	Elias	Cloudy	walking			2				7				9	1. greylag	101.48852	4	NV	greylag 30	281	raps	growing	0-15	90	199	51	Röningsjvi	132	topograph	25	topograph	34	topography
168-170	2021-03-02	12:51:00	Southern	Västra Gre	Elias	Cloudy	walking			12								12	NA	200.11524	3.4	NV	222	226	winter cer	growing	0-15	180	263	41	topograph	62	dike med r	206	topograph	46	topography
171-173	2021-03-02	14:55:00	Southern	Höllviken	Elias	Cloudy	walking			4								4	NA	65.875102	3.2	NV	320	333	ley	growing	0-15	63	181	50	reed aggre	73	dike med r	480	house	506	tree
174-176	2021-03-02	15:56:00	Southern	Rängs San	Elias	Cloudy	walking			31				148				179	unknown	86.359816	2.2	V	Multiple. b	131	winter cer	growing	0-15	78	399	158	jordhög	38	topograph	370	topograph	783	tree
177-179	2021-03-02	16:37:00	Southern	Skegrie	Elias	Cloudy	walking			43				8				51	unknown	242.45253	3.1	V	325	314	winter rap	growing	0-15	220	355	580	topograph	281	topograph	193	car emban	201	topography
180-182	2021-03-04	11:57:00	Free	Fjällfotasjö	Elias	Sunny	walking			29	5							34	1. greylag	117.25646	2	N	multiple	289	winter wh	growing	0-15	119	NA	25	topogradi	29	topograph	53	topograph	29	topography
183-185	2021-03-04	12:29:00	Free	Hönsingeh	Elias	Sunny	walking			11								11	NA	357.58023	NA	NA	NA	34	winter wh	growing	0-15	NA	429	NA	NA	NA	NA	283	topograph	144	topography
186-188	2021-03-04	15:29:00	Free	Steglarp	Elias	Cloudy	walking			11								11	NA	93.544718	1.6	Ö	245	132	winter wh	growing	0-15	69	144	103	car emban	107	previous y	91	previous y	92	topography
189-191	2021-03-04	15:57:00	Free	Västra Ver	Elias	Cloudy	walking			32								32	NA	77.946006	2.1	V	13	167	winter wh	growing	0-15	NA	141	20	topograph	13	topograph	114	topograph	82	topography
192-194	2021-03-04	16:12:00	Free	Lindby	Elias	Cloudy	walking			3								3	NA	69.975529	2.2	S	NA	216	winter wh	growing	0-15	NA	304	126	topograph	290	topograph	232	topograph	32	topography
195-197	2021-03-04	16:40:00	Free	Önnarp	Elias	Cloudy	walking			31								31	NA	91.111635	0	NA	Multiple. b	111	sugar beet	harvested	0	82	118	13	topograph	67	topograph	68	topograph	64	topography
198-200	2021-03-04	17:06:00	Free	Grönby	Elias	Cloudy	walking			50	7							57	1 barnacle	132.51743	1.7	S	Multiple	130	Clover ley	growing	0-15	NA	NA	26	topograph	387	topograph	80	topograph	42	topography
201-203	2021-03-05	11:04:00	Northern	Barsebäck	Elias	Sunny	walking			25								25	NA	100.84166	2.7	NV	260	106	winter cer	growing	0-15	83	NA	204	topograph	47	topograph	59	car emban	97	topography
204-206	2021-03-05	11:37:00	Northern	Barsebäck	Elias	Sunny	walking			2								2	NA	67.952624	3.4	V	334	110	winter cer	growing	0-15	60	135	40	topograph	5	previous y	10	previous y	58	topography
207-209	2021-03-05	12:55:00	Northern	Bjärred	Elias	Sunny	walking			6	18							24	1. greylag	70.932780	3.9	NV	multiple	147	without re	growing	0-15	62	NA	30	topograph	29	topograph	52	topograph	30	topography
210-2111-2121	2021-03-05	14:19:00	Northern	Habo Ljung	Elias	Sunny	walking			15								15	NA	116.89297	1.3	V	240	357	winter cer	growing	0-15	80	NA	14	topograph	61	topograph	38	topograph	7	tree
213-215	2021-03-05	15:32:00	Northern	Flädie	Elias	Sunny	walking			13					5			18	1. greylag	143.69039	4.1	NV	multiple bu	49	winter wh	growing	0-15	NA	285	111	topograph	117	tree	98	reed aggre	142	topography
217-219	2021-03-05	16:50:00	Northern	Lomma no	Elias	Sunny	walking			26								26	NA	25.393134	3.1	NV	351	53	winter cer	growing	0-15	NA	NA	97	topograph	91	topograph	117	car emban	128	tree
220-2211-222-223	2021-03-08	16:43:00	Free	Tullstorp	Elias	Sunny	walking			67								67	NA	222.15659	3.5	NV	multiple	242	winter wh	growing	0-15	162	NA	47	topograph	82	topograph	25	topograph	31	topography
224-226	2021-03-09	09:59:00	Eastern	Roslöv	Elias	Cloudy	walking			2								2	NA	189.85046	1.8	S	71	110	winter wh	growing	0-15	136	NA	20	topograph	74	topograph	139	topograph	43	topography
227-229	2021-03-09	10:29:00	Eastern	Holmby	Elias	Cloudy	walking			16								16	NA	52.162263	2	SV	233	142	winter cer	growing	0-15	45	156	45	topograph	83	topograph	54	topograph	39	buffert zor
230-232	2021-03-09	11:11:00	Eastern	Skarhult	Elias	Cloudy	walking			4								4	NA	99.653686	2.8	S	278	13	carrot	Förvaring	0-15	75	193	39	topograph	27	car emban	31	topograph	66	topography
233-235	2021-03-09	11:58:00	Eastern	Gårdstång	Elias	Cloudy	walking			34								34	NA	55.248694	2.5	S	330	101	winter wh	growing	0-15	48	NA	43	stenmWith	20	topograph	17	topograph	111	tree
236-238	2021-03-09	13:39:00	Eastern	Råby	Elias	Cloudy	walking			10								10	NA	46.807832	1	S	multiple	255	without re	growing	0-15	36	NA	165	bushes	135	topograph	81	topograph	141	topography
239-241	2021-03-09	15:06:00	Eastern	Gårdstång	Elias	Cloudy	walking	2		2								4	1. greylag	210.89493	2.6	V	250	254	winter cereals			NA	NA	121	car emban	186	topograph	197	tree	244	car emban
242-244	2021-03-09	18:03:00	Northern	Bjärred	Elias	Sunny	walking			16								16	NA	86.923203	0	NA	multiple. b	130	winter wh	growing	0-15	50	188	178	car emban	186	topograph	345	house	26	topography
245-247	2021-03-10	09:42:00	Southern	Bunkeflo s	Elias	Sunny	walking			42								42	NA	79.211596	2.6	SO	multiple bu	248	winter wh	growing	0-15	45	119	39	car emban	90	topograph	46	topograph	134	car emban
248-250	2021-03-10	10:38:00	Northern	Barsebäck	Elias	Sunny	walking			6								6	NA	93.341218	2.2	SO	multiple bu	105	winter wh	growing	0-15	77	114	409	virkeshög	369	topograph	41	property h	Without re	Without re
251-253	2021-03-10	11:03:00	Southern	Klagshamn	Elias	Sunny	walking			6								6	NA	101.35799	3.7	SO	multiple	331	winter wh	growing	0-15	99	135	81	topograph	Without re	Without re	36	höbal	143	property h
254-256	2021-03-10	11:20:00	Southern	Klagshamn	Elias	Sunny	walking			2								2	NA	96.342891	4	SO	between 9	218	winter wh	growing	0-15	70	168	65	property h	282	property h	496	grustag	813	tree
257-259	2021-03-10	11:50:00	Southern	Klagshamn	Elias	Sunny	walking			16				29				45	1. greylag	162.08704	4.7	SO	NA	70	raps	growing	0-15	170	222	168	topograph	160	house	40	car emban	81	buffert zor
260-262	2021-03-10	14:39:00	Southern	Bröddarp	Elias	Sunny	walking			11	250							261	simultaneo	149.46830	5.4	SO	multiple	202	Utgrävd ba	NA	0-15	NA	NA	3	topograph	17	topograph	41	topograph	4	topography
263-265	2021-03-10	14:58:00	Southern	Bröddarp	Elias	Sunny	walking			2								2	NA	104.94998	3.9	SO	48	137	åkerholme	growing	15-30	85	253	73	topograph	10	tree	56	topograph	216	car emban
266-268	2021-03-10	15:55:00	Southern	Steglarp	Elias	Sunny	walking			36	3				8			47	1. greylag	101.97708	5.4	SO	80 to 140	34	winter cereals			100	179	14	topograph	11	topograph	45	topograph	85	topography
269-271	2021-03-10	16:46:00	Southern	Vellinge vä	Elias	Sunny	walking			2								2	NA	154.65707	4.6	SO	110	180	winter cereals			98	214	212	virkeshög	101	topograph	Without re	Without re	201	property h
272-274	2021-03-10	17:11:00	Southern	Vellinge vä	Elias	Sunny	walking			9								9	NA	114.00637	3.8	SO	153	61	winter wheat			89	168	144	topograph	289	house	Without re	Without re	30	topography
275-277	2021-03-12	09:23:00	Northern	Norra Lom	Elias	Sunny	walking			4	29							33	1. greylag	70.811367	5.8	V	226	154	winter cer	growing	0-15	60	NA	84	bushes	63	topograph	44	topograph	81	car emban
278-280	2021-03-12	09:45:00	Northern	Norra Lom	Elias	Sunny	walking			9								9	NA	145.35615	5.7	V	281	247	winter wheat			135	NA	84	tree	100	topograph	65	topograph	83	car emban
281-283	2021-03-12	10:22:00	Northern	Lilla Lomm	Elias	Sunny	walking			14								14	NA	94.972531	2.2	V	305	41	winter cer	growing	0-15	86	151	141	topograph	21	tree	162	tree	147	topography
284-286	2021-03-12	10:59:00	Northern	Lilla Lomm	Elias	Sunny	walking			2								2	NA	167.70978	5	SV	222	175	winter cereals			NA	177	Without re	Without re	176	house	NA	NA	170	car emban
288-290	2021-03-12	11:33:00	Northern	Borgeby	Elias	Sunny	walking			2								2	NA	146.47965	5.1	V	294	18	bare soil	NA	0	NA	174	53	topograph	55	topograph	273	tree	262	tree
291-293	2021-03-12	13:26:00	Northern	Stenbäcks	Elias	Sunny	walking			7								7	NA	194.03693	6.5	SV	241	190	winter rap	growing	0-15	183	320	61	tree	NA	NA	30	topograph	74	car emban
294-296	2021-03-12	14:20:00	Northern	Barsebäck	Elias	Cloudy and	walking			46								46	NA	104.35626	1.5	V	multiple	10	winter cer	growing	0-15	91	126	89	previous y	34	previous y	67	car emban	45	topography
297-299	2021-03-12	14:40:00	Northern	Löddeköpi	Elias	Sunny	walking			2								2	NA	101.05715	3.1	V	282	353	winter wh	growing	0-15	91	118	267	car emban	98	car emban	126	car emban	Without re	Without re
300-302	2021-03-12	15:36:00	Northern	Löddeköpi	Elias	Sunny	walking			9								9	NA	78.870394	4.4	SV	231	323	winter wheat			83	205	164	topograph	224	tree	113	previous y	173	reed aggre
303-305	2021-03-12	16:25:00	Northern	Västra Hol	Elias	Sunny	walking			38				6				44	simultaneo	98.832804	4.8	SV	265	302	winter wheat			105	250	158	tree	183	topograph	87	topograph	23	topography
306-308	2021-03-12	16:53:00	Northern	Stångby ky	Elias	Sunny	walking			20								20	NA	124.13252	3.9	S	145	25	winter wh	growing	0-15	NA	158	183	topograph	Without re	Without re	213	tree	748	house
309-311	2021-03-15	10:07:00	Free	Högestad	Elias	Cloudy and	walking			3								3	NA	133.96861	5	S	multiple	318	winter wh	growing	0-15	111	208	14	topograph	131	topograph	190	topograph	50	topography
313-315	2021-03-15	10:56:00	Free	Köpingebr	Elias	Cloudy	walking			2								2	NA	45.918386	1.9	S	150	61	Hästbete	growing	0-15	38	76	5	reed aggre	60	topograph	64	reed aggre	5	reed aggre
316-318	2021-03-15	11:54:00	Free	Ystad norr	Elias	Cloudy	walking			1								1	NA	75.496022	1.8	S	33	97	ley	growing	0-15	76	98	24	car emban	153	topograph	81	topograph	42	topography
319-321	2021-03-15	12:25:00	Free	Balkåkra	Elias	Cloudy	walking			2								2	NA	71.173380	2.1	S	326	163	winter wh	growing	0-15	62	81	32	topograph	46	topograph	12	bushes	54	topography
322-324	2021-03-15	12:51:00	Free	Snårestad	Elias	Cloudy	walking			2								2	NA	103.96790	3.1	S	348	263	Mkt klent	growing	0-15	92	135	28	tree	54	topograph	18	topograph	180	topography
325-327	2021-03-15	13:17:00	Free	Sjörups Kyr	Elias	Cloudy	walking			7								7	NA	111.80531	3.4	S	274	169	winter wh	growing	0-15	97	161	114	topograph	16	topograph	19	topograph	16	topography
328-330	2021-03-15	14:03:00	Free	Skivarp	Elias	Cloudy	walking			5								5	NA	164.73848	2.6	S	Circulating	67	winter wh	growing	0-15	175	264	Without re	Without re	496	house	115	car emban	326	tree
331-333	2021-03-15	14:20:00	Free	Skivarp	Elias	Cloudy	walking			37								37	NA	116.91853	1.6	S	280	300	winter cer	growing	0-15	84	191	388	house	125	housebil	94	car emban	Without re	Without re
334-336	2021-03-15	15:35:00	Free	Körrup	Elias	Cloudy	walking			22								22	NA	98.907639	1.5	S	180	196	winter wh	growing	0-15	90	147	79	car emban	81	topograph	84	topograph	68	topography
337-339	2021-03-16	10:00:00	Eastern	[illegible]	Elias	Cloudy	walking			7	32							39	1. greylag	140.66839	3.1	N	352	310	winter wh	growing	0-15	116	NA	55	topograph	209	topograph	32	tree	132	topography
340-342	2021-03-16	10:53:00	Eastern	Hyby	Elias	Cloudy	walking			2								2	NA	89.277243	3.6	N	132	114	winter wh	growing	0-15	75	133	Without re	Without re	Without re		79	topograph	349	topography
343-345	2021-03-16	10:53:00	Eastern	Beden	Elias	Cloudy	walking			6								6	NA	96.131472	2.9	N	299	159	winter wh	growing	0-15	84	165	202	topograph	19	topograph	79	tree	246	house
346-348	2021-03-16	11:32:00	Eastern	Assartorp	Elias	Cloudy	walking			16								16	NA	44.695165	3.2	N	14	301/290	without re	growing	0-15	33	136	51	topograph	87	topograph	88	topograph	99	topography
349-351	2021-03-16	12:01:00	Eastern	Assartorp	Elias	Cloudy	walking			2								2	NA	49.602578	1.6	NO	256	190	without re	growing	0-15	53	97	62	topograph	55	topograph	107	tree	59	tree
352-354	2021-03-16	12:27:00	Eastern	Genarp	Elias	Cloudy	walking			2								2	NA	77.231169	1.3	NV	303	1	winter wh	growing	0-15	65	103	17	property h	199	topograph	89	car emban	250	stenmWith
355-357	2021-03-16	12:55:00	Eastern	Ugglarpssjö	Elias	Cloudy	walking			12								12	NA	135.99672	2.6	NO	172	175	ley	growing	0-15	110	233	160	tree fence	82	topograph	54	tree	138	car emban
358-360	2021-03-16	13:50:00	Eastern	Alberta	Elias	Cloudy	walking			7								7	NA	133.52654	2.9	N	144 & 175	122	winter wh	growing	0-15	81	260	301	house	Without re	Without re	204	topograph	196	car emban
361-363	2021-03-17	09:33:00	Southern	Bunkeflo s	Elias	Sunny	walking				20							20	NA	30.007789	1.5	NV	186	241	bare soil	NA	0	27	114	623	house	140	tree	106	previous y	111	villastaket
366-368	2021-03-17	10:58:00	Southern	Västra Kär	Elias	Sunny	walking			2								2	NA	139.35080	1.5	NV	120-190	165	winter wh	growing	0-15	122	188	41	topograph	29	bush	9	topograph	99	bush
369-371	2021-03-17	12:16:00	Southern	Rängs San	Elias	Sunny	walking			63								63	NA	173.58486	1.8	NV	118	117	ley & bare soil			173	328	33	topograph	39	previous y	Without re	Without re	Without re	Without re
372-374	2021-03-17	13:02:00	Southern	Trelleborg	Elias	Sunny	walking			17								17	NA	79.705359	2.2	Ö	Multiple. b	331	ley	growing	0-15	69	NA	182	topograph	326	tree	230	house	78	topography
375-377	2021-03-17	14:14:00	Southern	Västra Vär	Elias	Sunny	walking			4								4	NA	118.76064	0.5	SV	multiple	108	winter wh	growing	0-15	94	155	357	house	14	topograph	107	buffert zor	119	tree
378-380	2021-03-17	15:20:00	Southern	Gessie villa	Elias	Sunny	walking				1040							1040	NA	53.311507	2.6	NO	298	236	without re	growing	0-15	50	156	39	buffert zor	125	buffert zor	420	reed aggre	28	buffert zor
381-383	2021-03-17	15:58:00	Southern	Gessie villa	Elias	Sunny	walking			14								14	NA	76.587158	0	NA	351	104	winter wheat			57	136	253	previous y	366	NA	197	horse fenc	157	previous ye
384-386	2021-03-17	17:04:00	Southern	Klagshamn	Elias	Sunny	walking				5							5	NA	43.724060	1.8	SV	165	110	winter wh	growing	0-15	33	135	330	house	247	villastaket	272	reed aggre	Without re	Without re
387-389	2021-03-18	09:54:00	Northern	Alnarp	Elias	Sunny	walking			6								6	NA	167.81201	2.2	NV	108	179	winter wh	growing	0-15	163	NA	48	tree	60	topograph	622	house	134	house
393-395	2021-03-18	12:51:00	Northern	Svalöv nor	Elias	Sunny	walking			23								23	NA	50.413361	3.3	NO	multiple. b	207	winter wheat & bare soil			41	87	127	house	Without re	Without re	155	topograph	72	topography
396-398	2021-03-18	15:07:00	Northern	Stenbäcks	Elias	Sunny	walking			5								5	NA	72.511689	4.3	NV	184	61	winter wh	growing	0-15	NA	117	320	tree	72	topograph	34	halmtäckn	Without re	Without re
399-401	2021-03-18	15:27:00	Northern	Stenbäcks	Elias	Sunny	walking			4								4	NA	102.18914	<0.5	NV	NA	303	winter cer	growing	0-15	80	330	48	tree	60 topogra	272	topograph	88	topography	
402-404	2021-03-18	16:05:00	Northern	Barsebäck	Elias	Cloudy	walking			17		(1) Fanns i flocken initialt men d			2			19	1. greylag	76.947957	3.1	N	141	118	winter wh	growing	0-15	70	104	103	car emban	25	reed aggre	25	topograph	21	topography
407-409	2021-03-18	17:27:00	Northern	[illegible]	Elias	Cloudy	walking			12								12	NA	90.404323	4.4	NV	multiple bu	165	winter wh	growing	0-15	92	166	41	topograph	69	topograph	Without re	Without re	124	topography
410-412	2021-03-19	09:18:00	Free	Kristineber	Elias	Sunny	walking			4								4	NA	58.014599	NA	NA	85	156	winter cer	growing	0-15	67	111	115	car emban	100 topog	topograph	129	järnvägsva	286	topography
413-415	2021-03-19	09:46:00	Free	Arrie	Elias	Sunny	walking			2								2	NA	193.44422	2	NO	100	203	winter wh	growing	0-15	186	NA	91	topograph	30	topograph	397	tree	21	buffert zor
416-418	2021-03-19	10:26:00	Free	Västra Ingr	Elias	Sunny	walking			2								2	NA	165.97426	4.1	NO	140	229	winter wh	growing	0-15	149	NA	185	topograph	103	previous y	111	topograph	66	topography
419-421	2021-03-19	12:08:00	Free	Smygeham	Elias	Sunny	walking			6					(1) Står kvar på 56 m från WP3			6	NA	55.134620	1.8	NO	20	39	without re	growing	0-15	60	NA		36	reed aggre	80	topograph	336 house	47	topography
422-424	2021-03-19	13:35:00	Free	Näsbyholn	Elias	Sunny	walking			8					68			76	simultaneo	92.215028	2.1	NO	85	NA	without re	growing	0-15	62	73	538	tree	34	reed aggre	62	car emban	28	topography
425-427	2021-03-19	14:15:00	Free	[illegible]	Elias	Sunny	walking			2					2			4	1. greater	84.651490	2.9	NO	315	210	winter wh	growing	0-15	NA	NA	40	topograph	6	topograph	62	topograph	58	topography
428-430	2021-03-19	15:13:00	Free	Svaneholm	Elias	Sunny	walking			5								5	NA	57.681633	3.9	NO	103	185	without reach & odefinierat p80			53	103	323	tree	13	topograph	43	previous y	90	car emban
431-433	2021-03-19	15:46:00	Free	Janstorp	Elias	Sunny	walking			5								5	NA	73.923892	1.8	NO	210-280	285	ley	growing	0-15	65	NA	91	topograph	51	topograph	14	topograph	22	previous ye
434-436	2021-03-19	16:20:00	Free	[illegible]	Elias	Sunny	walking			2								2	NA	67.550189	1.2	N	77	61	winter wh	growing	0-15	65	203	38	topograph	16 topogra	topograph	24	topograph	160	jordhög
437-439	2021-03-21	10:38:00	Eastern	Gårdstång	Elias	Sunny	walking			14								14	NA	158.58106	3.8	NV	235	233	winter wh	growing	0-15	157	161	88	car emban	137	topograph	289	tree	324	tree
440-442	2021-03-21	11:38:00	Eastern	Harlösa	Elias	Sunny	walking			2								2	NA	64.513189	3.5	NO	200	272	without re	growing	0-15	60	147	19	car emban	38	topograph	280	tree	113	topography
443-445	2021-03-21	13:10:00	Eastern	Silvåkra	Elias	Sunny	walking			2								2	NA	44.947829	3	NV	275	345	without re	growing	0-15	42	130	171	villastaket	17	car emban	Without re	Without re	125	tree
446-449	2021-03-21	14:04:00	Eastern	Harlösa	Elias	Sunny	walking				53							53	NA	73.955821	5.5	NV	234	162	without re	growing	0-15	61	NA	30	topograph	41	topograph	229	topograph	201	topography
450-452	2021-03-21	14:58:00	Eastern	[illegible]	Elias	Sunny	walking			30					2			32	1. greylag	178.60748	5	NV	295	6	winter wh	growing	0-15	149	373	264	topograph	87	topograph	199	topograph	NA	NA
453-455	2021-03-21	15:27:00	Eastern	Alberta	Elias	Sunny	walking			7								7	NA	65.872622	6	NO	148 & 197	109	winter wh	growing	0-15	63	95	116	topograph	NA	NA	68	träskjul	60	halmbal
456-458	2021-03-22	10:02:00	Southern	Klagshamn	Elias	Sunny	walking			14								14	NA	76.790005	2.2	S	214	88	winter cer	growing	0-15	69	NA	90	topograph	34	bush	Without re	Without re	140	villastaket
459-461	2021-03-22	11:15:00	Southern	Maglarp	Elias	Sunny	walking			4								4	NA	42.815002	2.5	S	194	132	bare soil, v	NA		39	NA	68	reed aggre	107	topograph	417	car emban	30	topography
462-464	2021-03-22	12:37:00	Southern	Arrie	Elias	Sunny	walking			5								5	NA	47.633761	2.2	S	148	158	winter cer	growing	0-15	45	179	164	topograph	119	tree	50	topograph	112	stenmWith
465-468	2021-03-22	13:40:00	Southern	Östra Grev	Elias	Cloudy	walking			2								2	NA	53.646219	2.4	S	61	40	winter rap	growing	0-15	57	NA	60	topograph	40	reed aggre	167	topograph	66	reed aggre
469-471	2021-03-22	14:07:00	Southern	Arrie	Elias	Cloudy	walking			4								4	NA	54.978805	4.7	V	210	159	winter rap	growing	0-15	NA	NA	60	previous y	32	topograph	46	car emban	53	car emban
472-474	2021-03-22	15:10:00	Southern	Lockarp	Elias	Cloudy	walking			2								2	NA	49.360248	NA	NA	214	15	winter wh	growing	0-15	47	106	84	tree	31	reed aggre	134	previous y	261	property h
475-477	2021-03-22	15:29:00	Southern	Glostorp	Elias	Cloudy	walking			2								2	NA	54.029151	3.9	V	299	222	hästbete	growing	0-15	56	110	93	topograph	Without re	Without re	98	horse fenc	156	topography
478-480	2021-03-22	15:57:00	Southern	Gessie villa	Elias	Cloudy	walking				9							9	NA	43.232943	1.6	SV	NA	129	ley med st	growing	15-30	44	104	61	jordhög	228	bush	90	property h	126	tree
481-483	2021-03-22	16:18:00	Southern	Pile	Elias	Cloudy	walking			5	580							585	1. barnacle	121.43416	3.6	SV	multiple	57	winter wh	growing	0-15	110	219	302	house	Without re	Without re	102	tree	484	tree
484-486	2021-03-23	09:31:00	Northern	Bernstorp	Elias	Sunny	walking				390							390	NA	38.466366	1.7	V	multiple bu	343	winter wh	growing	0-15	38	165	122	reed aggre	314	house	47	reed aggre	134	reed aggre
487-489	2021-03-23	11:29:00	Northern	Nybo	Elias	Sunny	walking			5								5	NA	62.455168	1.5	V	214	261	without re	growing	0-15	59	134	30	villastaket	25	tree	64	tree	55	topography
490-492	2021-03-23	12:21:00	Northern	Flädie	Elias	Sunny	walking				185							185	NA	162.08566	0.5	V	multiple. n	132	winter cer	growing	0-15	158	NA	114	tree	117	topograph	103	tree	61	vass
493-495	2021-03-23	13:31:00	Northern	Bjärred sö	Elias	Sunny	walking			4								4	NA	45.902585	2.2	SV	168	170	winter rap	growing	15-30	40	92	502	house	Without re	Without re	123	previous y	205	villastaket
497-499	2021-03-23	14:34:00	Northern	Bjärred sö	Elias	Sunny	walking			4								4	NA	160.25084	0	NA	53	294	winter wh	growing	15-30	157	295	106	höbal	248	topograph	61	car emban	57	previous ye
500-502	2021-03-23	15:29:00	Northern	Alnarp	Elias	Sunny	walking			5	430							435	1. barnacle	76.578492	2.9	SV	multiple. b	358	winter wh	growing	15-30	69	163	31	topograph	106	buffert zor	75	topograph	336	tree
503-505	2021-03-23	15:54:00	Northern	Lomma	Elias	Sunny	walking			2								2	NA	32.646367	2.6	SV	240	143	winter wh	growing	15-30	30		103	bush	172	topograph	76	topograph	230	tree
506-508	2021-03-23	17:00:00	Northern	Bjärred	Elias	Sunny	walking			6								6	NA	84.856252	1.7	SV	190-280	241	bare soil	NA	0	80	232	208	property h	171	tree	45	tree	36	tree
509-511	2021-03-23	17:47:00	Northern	Löddeköpi	Elias	Sunny	walking			11				9				20	simultaneo	88.744141	1.4	SV	160	82	bare soil &	NA	0-15	86	146	25	topograph	162	vägräcke	85	topograph	12	topography

Appendix 2

The most recently systematically collected data of FID among LGB in Scania, were collected between 2020-11-11 and 2021-03-14. These data were collected on the initiative by my supervisors in the Kristianstad municipality. The data are yet unpublished, but with their permission, they can be used for quick comparisons to the data collected for this thesis. An advantage in the comparison is that the methods are the same for both datasets. In the discussion, the results from Kristianstad will be contrasted to the results of this thesis.

In total 201 scaring trials were conducted in the Kristianstad dataset, and 143 of these could be categorized as T-geese constellations, see figure 1. The overall mean for T-geese was 127.80 meters and the median was 118.34 meters. As discerned by figure 2, FID-values were not normally distributed.

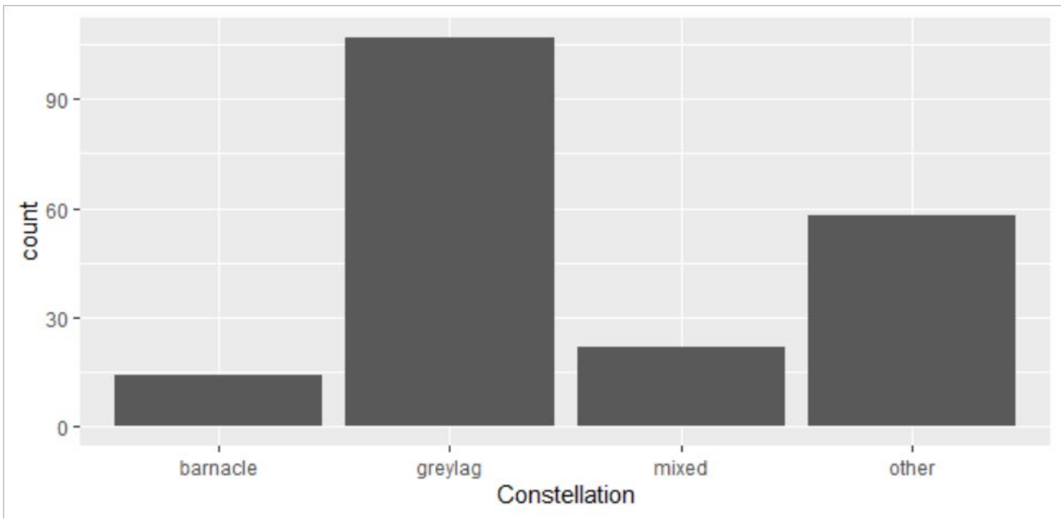

Figure 1. Flock constellations during scaring trials in the Kristianstad municipality. Since these scaring trials included all LGB, the constellation "other" is also included. In total, 201 scaring trials were performed. 143 of these regarded T-geese (i.e., barnacle, greylag and mixed flocks).

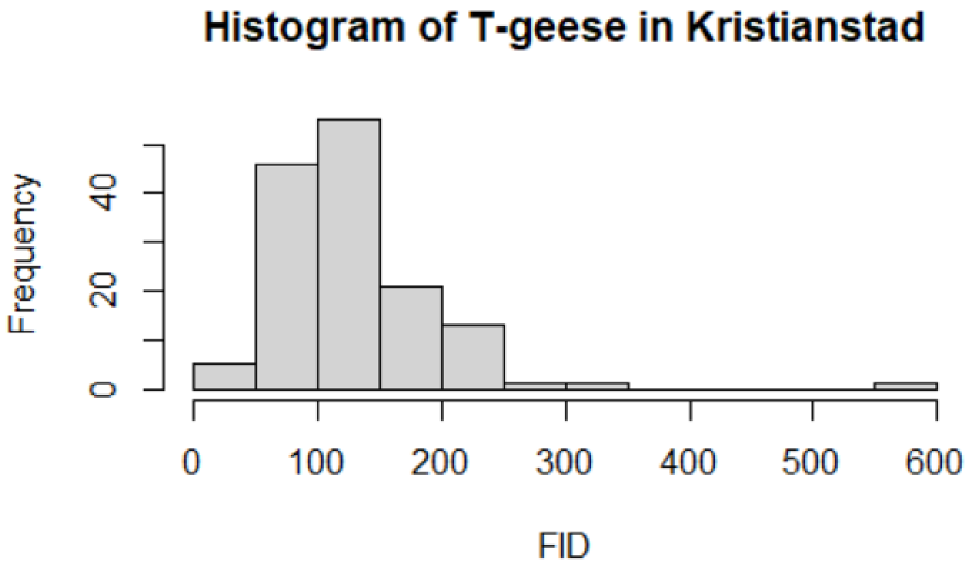

Figure 2. Histogram when T-geese are selected in the dataset of scaring trials in Kristianstad.

Comparisons between constellations are shown in figure 3, and since greylag and mixed constellations exhibited unnormal distribution, a Kruskal-Wallis test was run to test differences in FID between the constellations. The Kruskal-Wallis test produced a p-value of 0.4985, which refuted the potential of significant inferential differences between the constellations.

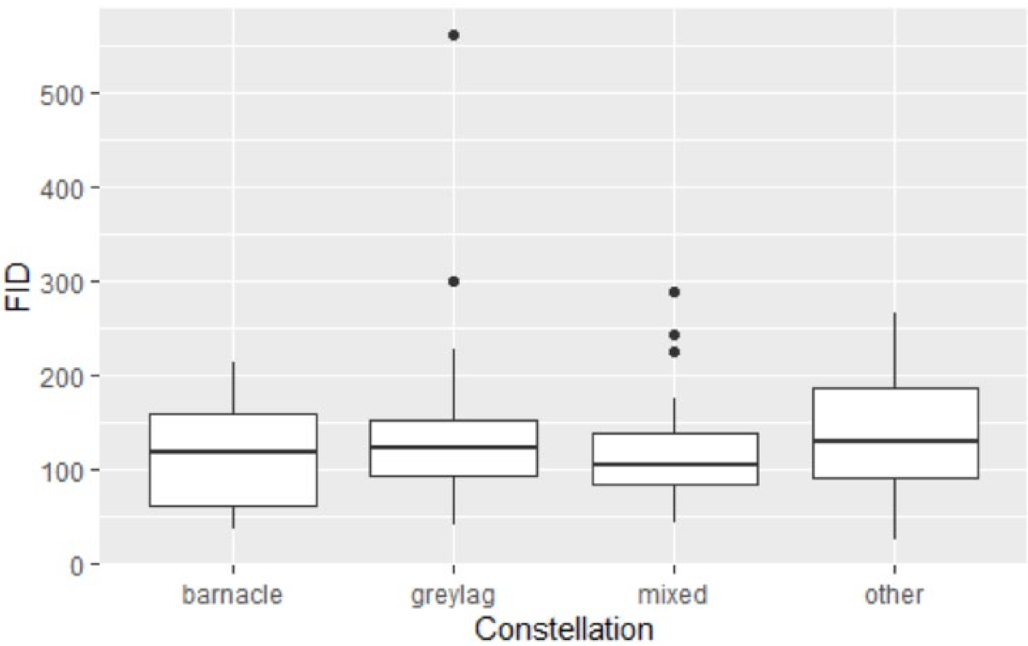

*Figure 3. FID compared between constellations. Whiskers are set as 1.5*Inter quartile range. Values outside whiskers are considered as outliers and depicted as dots.*

Appendix 3

Below are the linear models of the multiple regression showed with untransformed FID-values.

Table 1. Coefficients of the multiple linear regression describing greylag goose flocks. Unransformed FID-values.

Coefficient	Estimate	Std. error
Intercept	131.663	39.531
Distance to nearest object	0.287	0.088
Ordinal date	-0.713	0.527
Individuals	0.553	0.29

Table 2. Coefficients of the multiple linear regression describing barnacle goose flocks. Untransformed FID-values.

Coefficient	Estimate	Std. error
Intercept	25.589	193.116
Distance to nearest object	-0.023	0.257
Ordinal date	0.451	2.354
Individuals	0.028	0.037

Table 3. Coefficients of the multiple linear regression describing mixed flocks. UntransformedFID-values.

Coefficient	Estimate	Std. error
Intercept	101.81	70.504
Distance to nearest object	0.408	0.165
Ordinal date	-0.056	1.015
Individuals	-0.022	0.036

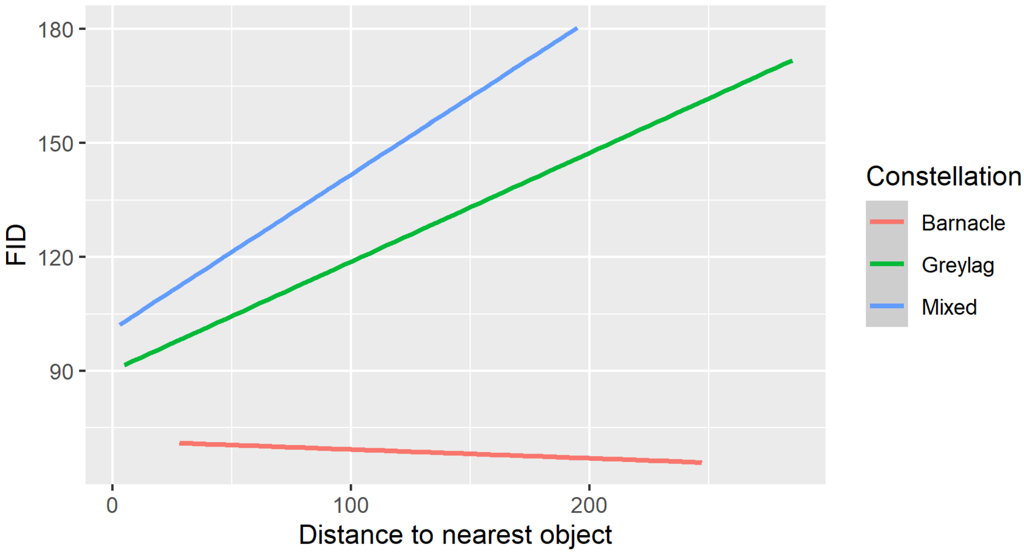

Figure 1. Linear model for all species using untransformed FID-values. Regression lines are based on the equations below which in turn are taken from table one to three.

Barnacle: y(FID)= -0.0232*Distance to nearest object + 0.02786 *Mean number of individuals + 0.45155*Mean ordinal date + 25.58930 (Intercept)

Greylag: y(FID)= 0.28669*Distance to nearest object + 0.55359*Mean number of individuals + -0.71264*Mean ordinal date + (131.66291) (Intercept)

Mixed: y(FID): 0.40783*Distance to nearest object + -0.02244*Mean number of individuals + 0.05646*Mean ordinal date + (101.80599) (Intercept)

Appendix 4

Below are the coordinates for all waypoints, WP1 are also included, and thus it's usually just each third ID that constitutes an FID value. Sometimes cancelled scaring trials or data collection errors imply longer jumps between FIDs to obtain the FIDs, compare with the FID column in appendix 1. For illustrative purposes, the first FID 11 FID-values are written out explicitly.

ID	Lat (WGS84)	Lon (WGS84)	ele	time	POINT_X (RT90)	POINT_Y (RT90)		Name	Pythagora's theorem		FID
1	55,4567	13,00165	2,890549	2021-02-12T09:41:18Z	1322485	6151019		1			
2	55,45649	13,00149	4,604938	2021-02-12T09:44:39Z	1322474	6150995		2			
3	55,45559	13,00103	4,483433	2021-02-12T09:46:19Z	1322441	6150897		3	103,8517		103,8517
4	55,51114	12,93719	1,447363	2021-02-12T11:06:06Z	1318660	6157243		4	7386,742		
5	55,51072	12,93543	0,489635	2021-02-12T11:09:19Z	1318547	6157201		5	120,779		
6	55,51035	12,93469	-0,40465	2021-02-12T11:10:35Z	1318498	6157161		6	62,73842		62,73842
7	55,5153	12,93546	1,11306	2021-02-12T11:30:17Z	1318570	6157710		7	553,4468		
8	55,51589	12,93572	1,298123	2021-02-12T11:33:00Z	1318589	6157776		8	68,435		
9	55,51697	12,93658	1,123736	2021-02-12T11:38:53Z	1318648	6157893		9	131,5699		131,5699
10	55,73709	13,34719	17,41227	2021-02-12T12:32:25Z	1345442	6181394		10	35639,42		
11	55,7373	13,3461	16,32608	2021-02-12T12:35:04Z	1345374	6181420		11	72,52994		
12	55,73785	13,34461	18,6179	2021-02-12T12:37:45Z	1345283	6181484		12	111,5269		111,5269

13	55,72995	13,34043	21,67617	2021-02-12T13:04:08Z	1344989	6180614		13	918,0171		
14	55,73002	13,34019	23,33881	2021-02-12T13:07:08Z	1344974	6180623		14	17,0208		
15	55,73026	13,33923	20,60979	2021-02-12T13:09:25Z	1344914	6180652		15	66,51753		66,51753
16	55,73535	13,3697	20,65637	2021-02-12T13:32:51Z	1346848	6181150		16	1996,869		
17	55,73484	13,36973	19,71408	2021-02-12T13:35:55Z	1346848	6181093		17	56,7053		
18	55,73433	13,36974	17,27806	2021-02-12T13:38:02Z	1346847	6181037		18	56,69253		56,69253
19	55,65065	13,05591	9,152039	2021-02-18T09:38:51Z	1326772	6172463		25	21829,07		
20	55,65079	13,05632	7,73597	2021-02-18T09:44:10Z	1326798	6172478		26	30,20731		
21	55,65117	13,05698	8,697367	2021-02-18T09:46:16Z	1326841	6172519		27	59,55539		59,55539
22	55,73063	13,04194	13,73142	2021-02-18T10:34:43Z	1326248	6181398		28	8899,434		
23	55,73028	13,04175	13,51948	2021-02-18T10:40:07Z	1326235	6181359		29	41,38508		
24	55,72866	13,04162	14,12552	2021-02-18T10:43:48Z	1326219	6181180		30	180,1463		180,1463
25	55,74231	13,03021	14,53399	2021-02-18T12:09:00Z	1325564	6182728		31	1680,897		
26	55,74231	13,03022	12,59155	2021-02-18T12:14:18Z	1325564	6182727		32	0,706752		
27	55,74261	13,03064	10,24581	2021-02-18T12:15:42Z	1325592	6182759		33	42,51999		42,51999
28	55,74232	13,03016	10,78886	2021-02-18T12:23:33Z	1325561	6182729		34	43,57692		
29	55,74233	13,03017	11,9274	2021-02-18T12:25:40Z	1325561	6182729		35	0,550956		
30	55,74242	13,03423	10,52817	2021-02-18T12:30:58Z	1325816	6182730		36	255,1645		255,1645
31	55,7546	13,05286	13,08635	2021-02-18T15:11:27Z	1327040	6184038		37	1791,447		
32	55,7546	13,05286	14,54801	2021-02-18T15:13:11Z	1327039	6184038		38	0,54831		

33	55,75479	13,05434	14,07591	2021-02-18T15:15:35Z	1327133	6184055		39	95,3756		95,3756
34	55,73413	13,34468	23,93232	2021-02-19T09:03:26Z	1345272	6181070		40	18382,9		
35	55,73413	13,34468	23,82601	2021-02-19T09:06:36Z	1345272	6181070		41	0,448763		
36	55,73434	13,34203	0	2021-02-19T09:13:59Z	1345107	6181100		42	168,0579		
37	55,73175	13,37694	17,22404	2021-02-19T09:54:45Z	1347289	6180733		43	2212,41		
38	55,73175	13,37683	17,41389	2021-02-19T10:02:06Z	1347282	6180734		44	6,947574		
39	55,73257	13,38068	16,00521	2021-02-19T10:09:19Z	1347526	6180817		45	258,3565		
40	55,72894	13,48179	26,80883	2021-02-19T11:45:13Z	1353862	6180194		46	6366,409		
41	55,7286	13,48111	22,4345	2021-02-19T11:48:02Z	1353819	6180158		47	56,94677		
42	55,72772	13,4794	18,69348	2021-02-19T11:53:54Z	1353708	6180064		48	145,2554		
43	55,73103	13,4796	27,16833	2021-02-19T12:27:22Z	1353733	6180432		49	368,2377		
44	55,73162	13,47953	30,07014	2021-02-19T12:30:04Z	1353731	6180498		50	65,9401		
45	55,73387	13,47989	43,7076	2021-02-19T12:36:37Z	1353761	6180747		51	251,1994		
46	55,68512	13,42426	35,45119	2021-02-19T13:24:24Z	1350082	6175441		52	6456,721		
47	55,68491	13,42425	36,29904	2021-02-19T13:33:59Z	1350080	6175417		53	24,0663		
48	55,68553	13,41834	29,86811	2021-02-19T13:44:00Z	1349711	6175500		54	378,3728		
49	55,51632	12,93494	21,4938	2021-02-22T11:22:12Z	1318542	6157825		55	35832		
50	55,51634	12,93508	20,72131	2021-02-22T11:23:15Z	1318550	6157827		56	8,937145		
51	55,51686	12,9372	18,91805	2021-02-22T11:27:14Z	1318687	6157880		57	146,2484		
52	55,50801	12,93921	6,564308	2021-02-22T11:55:08Z	1318773	6156889		58	994,6051		

53	55,50808	12,9385	4,909363	2021-02-22T11:57:19Z	1318728	6156899		59	45,25305		
54	55,50814	12,93743	3,05024	2021-02-22T12:00:32Z	1318661	6156909		60	68,15073		
55	55,50814	12,93743	1,904266	2021-02-22T12:07:28Z	1318661	6156908		61	0,941736		
56	55,50797	12,93614	0,964378	2021-02-22T12:10:38Z	1318579	6156892		62	84,16654		
57	55,50788	12,93488	0,254358	2021-02-22T12:12:36Z	1318499	6156887		63	80,21738		
58	55,51365	12,97625	11,91363	2021-02-22T12:39:00Z	1321137	6157420		64	2692,112		
59	55,51327	12,97718	13,19948	2021-02-22T12:40:44Z	1321195	6157376		65	72,12055		
60	55,51297	12,978	12,87437	2021-02-22T12:42:55Z	1321245	6157340		66	62,13438		
61	55,42971	12,9793	-1,64864	2021-02-22T13:59:39Z	1320950	6148073		67	9272,108		
62	55,43031	12,97873	-0,28658	2021-02-22T14:05:17Z	1320916	6148141		68	75,94127		
63	55,43089	12,97783	-1,4018	2021-02-22T14:06:29Z	1320862	6148208		69	86,47619		
64	55,41632	13,01338	0,732262	2021-02-22T14:26:16Z	1323047	6146496		70	2775,796		
65	55,41642	13,01227	0,792366	2021-02-22T14:28:11Z	1322977	6146509		71	71,33001		
66	55,41653	13,00956	-0,64568	2021-02-22T14:31:51Z	1322806	6146529		72	172,0838		
67	55,40264	13,01968	-2,70144	2021-02-22T14:51:09Z	1323384	6144957		73	1674,736		
68	55,40252	13,02013	-3,74203	2021-02-22T14:52:10Z	1323412	6144943		74	31,26372		
69	55,40182	13,02321	-4,96451	2021-02-22T14:56:02Z	1323604	6144857		75	210,2869		
70	55,57638	13,17275	17,08264	2021-02-23T08:58:38Z	1333810	6163912		82	21616,56		
71	55,57588	13,17221	17,16873	2021-02-23T09:00:14Z	1333773	6163858		83	65,24946		
72	55,57692	13,17316	18,4055	2021-02-23T09:10:39Z	1333838	6163972		84	130,7585		

73	55,58311	13,29339	33,30159	2021-02-23T09:29:55Z	1341442	6164380		85	7615,098		
74	55,58254	13,29383	34,09015	2021-02-23T09:32:17Z	1341468	6164315		86	69,24333		
75	55,58202	13,29494	35,53235	2021-02-23T09:33:45Z	1341536	6164255		87	91,09544		
76	55,60467	13,38365	29,20879	2021-02-23T10:05:01Z	1347215	6166577		88	6136,054		
77	55,60477	13,38367	28,20224	2021-02-23T10:06:08Z	1347217	6166587		89	10,81081		
78	55,6058	13,38387	27,95356	2021-02-23T10:08:08Z	1347234	6166702		90	116,2496		
79	55,60434	13,38692	30,84442	2021-02-23T10:22:09Z	1347420	6166533		91	251,7603		
80	55,60486	13,38705	31,49016	2021-02-23T10:26:46Z	1347430	6166590		92	58,16625		
81	55,60583	13,38721	30,86178	2021-02-23T10:29:55Z	1347445	6166698		93	108,9419		
82	55,51798	13,44276	73,65074	2021-02-23T11:05:01Z	1350611	6156800		94	10392,04		
83	55,51799	13,44276	73,57692	2021-02-23T11:06:03Z	1350611	6156802		95	1,81082		
84	55,51916	13,44459	76,03682	2021-02-23T11:08:42Z	1350730	6156928		96	173,353		
85	55,44905	13,72707	31,98962	2021-02-23T13:33:41Z	1368333	6148554		97	19492,7		
86	55,44985	13,7275	32,81448	2021-02-23T13:36:30Z	1368363	6148643		98	93,40907		
87	55,4503	13,7279	33,88223	2021-02-23T13:38:12Z	1368390	6148692		99	55,71223		
88	55,44694	13,71077	24,57799	2021-02-23T13:55:06Z	1367295	6148351		100	1146,926		
89	55,4464	13,71135	22,48768	2021-02-23T13:58:19Z	1367330	6148289		101	70,89087		
90	55,44584	13,71138	25,13479	2021-02-23T13:59:45Z	1367330	6148227		102	62,05181		
91	55,43121	13,55398	16,22344	2021-02-23T14:38:02Z	1357320	6146911		103	10095,84		
92	55,4309	13,55419	15,20625	2021-02-23T14:40:02Z	1357332	6146876		104	37,09805		

93	55,42996	13,55532	13,35725	2021-02-23T14:43:20Z	1357400	6146768		105	127,1703		
94	55,44512	13,46584	57,64143	2021-02-23T15:15:39Z	1351795	6148643		106	5910,63		
95	55,44404	13,46651	54,55748	2021-02-23T15:19:39Z	1351833	6148522		107	127,2192		
96	55,44299	13,46656	54,00355	2021-02-23T15:21:54Z	1351832	6148404		108	117,6132		
97	55,43039	13,4337	51,42104	2021-02-23T15:46:21Z	1349705	6147072		109	2509,339		
98	55,4299	13,43456	52,4895	2021-02-23T15:49:08Z	1349758	6147017		110	76,61002		
99	55,42929	13,43572	50,69029	2021-02-23T15:51:19Z	1349829	6146945		111	100,5745		
100	55,70829	13,04022	3,119473	2021-02-24T09:23:05Z	1326040	6178917		112	39850,71		
101	55,70705	13,04144	-1,41004	2021-02-24T09:29:47Z	1326112	6178776		113	158,4464		
102	55,70612	13,04195	-2,3458	2021-02-24T09:33:33Z	1326140	6178670		114	108,8606		
103	55,7467	13,04745	16,29694	2021-02-24T10:14:25Z	1326665	6183172		115	4532,735		
104	55,74583	13,04521	11,14381	2021-02-24T10:17:53Z	1326521	6183082		116	170,6911		
105	55,74504	13,04342	9,774	2021-02-24T10:21:06Z	1326405	6182998		117	142,6251		
106	55,76748	12,96441	5,708155	2021-02-24T12:17:40Z	1321548	6185695		118	5555,293		
107	55,76753	12,96447	4,98025	2021-02-24T12:18:38Z	1321552	6185702		119	7,256293		
108	55,76871	12,96635	5,479695	2021-02-24T12:21:55Z	1321675	6185827		120	176,0602		
109	55,76669	12,95863	7,365985	2021-02-24T12:40:31Z	1321182	6185622		121	534,3513		
110	55,76668	12,95865	6,94461	2021-02-24T12:41:31Z	1321183	6185622		122	1,363139		
111	55,76609	12,95944	4,013562	2021-02-24T12:43:15Z	1321230	6185554		123	82,64678		
112	55,7674	12,9724	5,804142	2021-02-24T13:58:13Z	1322049	6185666		124	826,3259		

113	55,76781	12,97264	4,80606	2021-02-24T14:01:12Z	1322066	6185712		125	48,74746		
114	55,76901	12,97332	5,940853	2021-02-24T14:06:07Z	1322114	6185843		126	140,0789		
115	55,74226	13,03024	10,70723	2021-02-24T14:51:44Z	1325565	6182722		127	4653,519		
116	55,7425	13,03045	7,897609	2021-02-24T14:53:27Z	1325579	6182748		128	29,63009		
117	55,74293	13,03092	6,586313	2021-02-24T14:54:53Z	1325611	6182795		129	56,44415		
118	55,73508	13,04643	5,754436	2021-02-24T15:25:45Z	1326550	6181882		130	1309,763		
119	55,73764	13,04496	5,935586	2021-02-24T15:38:02Z	1326469	6182171		131	300,0993		
120	55,73809	13,04559	5,645923	2021-02-24T15:41:45Z	1326511	6182219		132	64,14652		
121	55,74721	13,32596	18,39747	2021-02-26T09:01:07Z	1344149	6182568		133	17641,77		
122	55,74804	13,32594	16,30956	2021-02-26T09:03:58Z	1344151	6182660		134	92,09588		
123	55,74959	13,32567	13,45693	2021-02-26T09:06:59Z	1344140	6182833		135	173,7675		
124	55,78868	13,36472	55,84377	2021-02-26T09:50:09Z	1346745	6187096		136	4995,762		
125	55,78848	13,36588	57,40345	2021-02-26T09:52:14Z	1346817	6187071		137	76,18311		
126	55,78813	13,36835	58,17818	2021-02-26T09:55:13Z	1346970	6187027		138	159,6445		
127	55,76502	13,31897	18,97493	2021-02-26T11:03:52Z	1343781	6184565		139	4028,945		
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129	55,76717	13,32021	21,38251	2021-02-26T11:08:27Z	1343868	6184802		141	138,8293		
130	55,7284	13,46738	18,90479	2021-02-26T11:50:45Z	1352955	6180165		142	10202,51		
131	55,72865	13,46719	20,75647	2021-02-26T11:52:38Z	1352944	6180193		143	30,02751		
132	55,72902	13,46683	17,05538	2021-02-26T11:54:43Z	1352923	6180235		144	46,83709		

133	55,72325	13,5072	34,01543	2021-02-26T14:12:09Z	1355437	6179509		145	2616,754		
134	55,72162	13,50482	21,00359	2021-02-26T14:17:45Z	1355282	6179332		146	235,3846		
135	55,72111	13,5032	21,73294	2021-02-26T14:19:53Z	1355178	6179278		147	116,6887		
136	55,72508	13,50097	35,46544	2021-02-26T14:39:14Z	1355052	6179725		148	463,3657		
137	55,72444	13,50064	28,76172	2021-02-26T14:42:48Z	1355030	6179655		149	73,601		
138	55,72331	13,49853	18,53625	2021-02-26T14:46:09Z	1354892	6179533		150	183,2425		
139	55,72858	13,48125	19,46921	2021-02-26T15:05:09Z	1353827	6180156		151	1234,11		
140	55,72845	13,48107	17,35359	2021-02-26T15:06:38Z	1353815	6180142		152	18,01864		
141	55,72743	13,47924	15,77506	2021-02-26T15:09:07Z	1353696	6180032		153	161,9914		
142	55,53246	12,92323	31,49421	2021-03-02T08:24:12Z	1317877	6159652		154	41211,91		
143	55,5325	12,92882	24,37577	2021-03-02T08:31:24Z	1318230	6159641		155	353,2846		
144	55,5327	12,93112	22,76454	2021-03-02T08:34:09Z	1318376	6159657		156	147,1456		
145	55,5435	12,93108	10,6062	2021-03-02T09:02:07Z	1318423	6160859		157	1202,751		
146	55,54301	12,93055	8,893089	2021-03-02T09:04:31Z	1318387	6160807		158	63,35488		
147	55,54259	12,93013	8,087837	2021-03-02T09:05:41Z	1318359	6160761		159	54,03847		
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154	55,50095	12,9809	7,315767	2021-03-02T10:27:38Z	1321374	6155996		166	95,95348		

155	55,50144	12,97955	8,630884	2021-03-02T10:29:37Z	1321291	6156054		167	101,4885		
156	55,46253	13,06135	20,44779	2021-03-02T11:51:27Z	1326286	6151517		168	6748,333		
157	55,46213	13,06051	19,73151	2021-03-02T11:53:18Z	1326231	6151474		169	69,51484		
158	55,46107	13,05796	17,15165	2021-03-02T11:57:08Z	1326065	6151363		170	200,1152		
159	55,42977	12,97921	-1,82875	2021-03-02T13:55:57Z	1320944	6148079		171	6082,691		
160	55,43077	12,97832	-4,37262	2021-03-02T13:59:42Z	1320893	6148193		172	124,987		
161	55,43102	12,97738	-2,37843	2021-03-02T14:00:58Z	1320834	6148224		173	65,8751		
162	55,40234	13,03276	1,768977	2021-03-02T14:56:49Z	1324211	6144891		174	4744,602		
163	55,39956	13,03372	0,949084	2021-03-02T15:12:51Z	1324259	6144579		175	315,2495		
164	55,39885	13,03428	1,755075	2021-03-02T15:15:13Z	1324291	6144499		176	86,35982		
165	55,40376	13,05631	8,24842	2021-03-02T15:37:07Z	1325708	6144990		177	1499,712		
166	55,40462	13,05532	6,152484	2021-03-02T15:39:46Z	1325649	6145088		178	114,5884		
167	55,4065	13,05338	4,926224	2021-03-02T15:43:56Z	1325535	6145302		179	242,4525		
168	55,52243	13,29369	51,66093	2021-03-04T10:57:37Z	1341217	6157627		180	19946,01		
169	55,52247	13,29349	53,20359	2021-03-04T10:59:31Z	1341204	6157631		181	13,33873		
170	55,52289	13,29179	47,76064	2021-03-04T11:01:53Z	1341099	6157682		182	117,2565		
171	55,49429	13,26055	52,57296	2021-03-04T11:29:23Z	1339010	6154571		183	3746,974		
172	55,49524	13,262	49,65536	2021-03-04T11:32:53Z	1339105	6154673		184	139,729		
173	55,49777	13,26548	48,77102	2021-03-04T11:38:05Z	1339335	6154947		185	357,5802		
174	55,38689	13,45963	12,42018	2021-03-04T14:29:22Z	1351183	6142177		186	17420,32		

175	55,38635	13,45977	10,56518	2021-03-04T14:30:48Z	1351190	6142116		187	60,97763		
176	55,38552	13,45999	8,57732	2021-03-04T14:32:24Z	1351201	6142023		188	93,54472		
177	55,43476	13,47523	36,22652	2021-03-04T14:57:20Z	1352350	6147470		189	5567,253		
178	55,43412	13,47546	31,31633	2021-03-04T14:58:54Z	1352362	6147399		190	72,42417		
179	55,43346	13,47584	30,16602	2021-03-04T15:00:43Z	1352384	6147324		191	77,94601		
180	55,44483	13,47683	43,18819	2021-03-04T15:12:39Z	1352489	6148587		192	1267,376		
181	55,44335	13,47342	49,18916	2021-03-04T15:16:47Z	1352267	6148430		193	271,5198		
182	55,44285	13,47276	50,54009	2021-03-04T15:17:54Z	1352224	6148375		194	69,97553		
183	55,42838	13,42979	41,96384	2021-03-04T15:40:05Z	1349451	6146858		195	3161,373		
184	55,42833	13,43027	42,35359	2021-03-04T15:41:56Z	1349481	6146850		196	30,75857		
185	55,42806	13,43163	40,4268	2021-03-04T15:43:39Z	1349566	6146818		197	91,11164		
186	55,4328	13,36876	49,07674	2021-03-04T16:06:58Z	1345606	6147483		198	4015,442		
187	55,43209	13,37014	45,18679	2021-03-04T16:10:10Z	1345690	6147401		199	117,5347		
188	55,43131	13,37171	43,90336	2021-03-04T16:12:23Z	1345787	6147310		200	132,5174		
189	55,76792	12,96456	-0,33971	2021-03-05T10:04:25Z	1321559	6185744		201	45432,59		
190	55,76768	12,96778	0,00834	2021-03-05T10:14:39Z	1321761	6185710		202	204,4692		
191	55,76756	12,96938	0,584319	2021-03-05T10:16:39Z	1321860	6185692		203	100,8417		
192	55,76671	12,95858	2,080823	2021-03-05T10:37:08Z	1321179	6185625		204	684,5827		
193	55,76662	12,95965	-0,24524	2021-03-05T10:39:46Z	1321246	6185612		205	68,01303		
194	55,76654	12,96072	-0,37089	2021-03-05T10:41:49Z	1321313	6185600		206	67,95262		

195	55,70862	13,04218	-1,07545	2021-03-05T11:55:39Z	1326165	6178949		207	8233,715		
196	55,70737	13,04269	-1,12363	2021-03-05T12:00:25Z	1326192	6178808		208	143,3028		
197	55,70674	13,04292	-1,72129	2021-03-05T12:02:09Z	1326203	6178738		209	70,93278		
198	55,72467	13,03697	6,322813	2021-03-05T13:19:57Z	1325910	6180747		210	2030,674		
199	55,72591	13,03658	5,418687	2021-03-05T13:24:07Z	1325890	6180887		2111	140,7156		
200	55,72694	13,03618	6,625188	2021-03-05T13:26:27Z	1325870	6181002		2121	116,893		
201	55,72077	13,06682	2,789028	2021-03-05T14:32:01Z	1327767	6180239		213	2044,828		
202	55,72157	13,06856	0,366501	2021-03-05T14:34:32Z	1327880	6180324		214	141,4826		
203	55,72253	13,0701	0,51335	2021-03-05T14:37:35Z	1327981	6180426		215	143,6904		
204	55,68298	13,09338	2,909491	2021-03-05T15:48:52Z	1329270	6175968		216	4640,789		
205	55,68296	13,09354	3,031807	2021-03-05T15:50:48Z	1329280	6175965		217	10,74911		
206	55,68359	13,09447	1,781769	2021-03-05T15:53:48Z	1329342	6176033		218	91,61777		
207	55,68376	13,09474	0,700844	2021-03-05T15:54:36Z	1329359	6176051		219	25,39313		
208	55,89023	12,87933	9,02246	2021-03-08T15:43:42Z	1316789	6199577		220	26673,02		
209	55,89023	12,87932	9,460926	2021-03-08T15:43:59Z	1316789	6199577		2211	0,218839		
210	55,89003	12,87689	9,389332	2021-03-08T15:46:40Z	1316636	6199561		222	154,1116		
211	55,8897	12,87339	10,34206	2021-03-08T15:50:05Z	1316415	6199534		223	222,1566		
212	55,76736	13,4017	78,43701	2021-03-09T08:59:20Z	1348981	6184642		224	35808,87		
213	55,76731	13,40198	77,10806	2021-03-09T09:00:25Z	1348998	6184636		225	18,44202		
214	55,76689	13,40491	78,35535	2021-03-09T09:03:08Z	1349181	6184583		226	189,8505		

215	55,74482	13,40925	26,14507	2021-03-09T09:29:44Z	1349368	6182118		227	2472,704		
216	55,74402	13,41022	25,00465	2021-03-09T09:32:50Z	1349426	6182026		228	107,8591		
217	55,74377	13,41092	25,81076	2021-03-09T09:33:55Z	1349469	6181997		229	52,16226		
218	55,78968	13,36491	53,71539	2021-03-09T10:11:10Z	1346761	6187207		230	5872,094		
219	55,7905	13,36514	53,11693	2021-03-09T10:14:02Z	1346778	6187298		231	92,37811		
220	55,79139	13,36532	56,50737	2021-03-09T10:34:02Z	1346793	6187397		232	99,65369		
221	55,77958	13,36089	55,54234	2021-03-09T10:58:04Z	1346469	6186092		233	1344,095		
222	55,7796	13,36222	55,72376	2021-03-09T11:00:24Z	1346552	6186092		234	83,32364		
223	55,77917	13,36264	57,32972	2021-03-09T11:02:25Z	1346577	6186042		235	55,24869		
224	55,68722	13,23886	24,69626	2021-03-09T12:39:39Z	1338434	6176091		236	12858,27		
225	55,68731	13,23681	22,57012	2021-03-09T12:43:39Z	1338306	6176106		237	129,5378		
226	55,68732	13,23607	23,10187	2021-03-09T12:45:30Z	1338259	6176108		238	46,80783		
227	55,76926	13,3202	32,82232	2021-03-09T14:06:15Z	1343876	6185034		239	10545,9		
228	55,76921	13,31973	28,06417	2021-03-09T14:07:44Z	1343846	6185030		240	29,90678		
229	55,76892	13,31641	18,97432	2021-03-09T14:10:05Z	1343637	6185006		241	210,8949		
230	55,6876	13,10522	2,695009	2021-03-09T17:03:57Z	1330035	6176453		242	16067,2		
231	55,68695	13,10648	3,665304	2021-03-09T17:06:56Z	1330111	6176378		243	107,6943		
232	55,68671	13,1078	2,786841	2021-03-09T17:08:25Z	1330193	6176348		244	86,9232		
233	55,54474	12,98526	28,82461	2021-03-10T08:42:43Z	1321847	6160857		245	17595,98		
234	55,5447	12,9846	26,70537	2021-03-10T08:44:48Z	1321805	6160855		246	42,00546		

235	55,54459	12,98336	25,50761	2021-03-10T08:46:14Z	1321727	6160845		247	79,2116		
236	55,5035	12,94281	2,919195	2021-03-10T09:38:02Z	1318979	6156378		248	5244,341		
237	55,50345	12,94315	2,489479	2021-03-10T09:39:12Z	1319001	6156371		249	22,34894		
238	55,50308	12,94447	6,981837	2021-03-10T09:40:45Z	1319083	6156327		250	93,34122		
239	55,52033	12,94165	11,06167	2021-03-10T10:03:10Z	1318984	6158254		251	1929,636		
240	55,52063	12,94144	8,249506	2021-03-10T10:04:49Z	1318971	6158288		252	36,14364		
241	55,52145	12,94073	8,676559	2021-03-10T10:06:28Z	1318931	6158380		253	101,358		
242	55,51871	12,94638	8,260294	2021-03-10T10:20:00Z	1319275	6158062		254	469,2327		
243	55,51834	12,94542	7,805914	2021-03-10T10:21:39Z	1319212	6158023		255	73,51557		
244	55,51785	12,94416	5,378344	2021-03-10T10:23:06Z	1319131	6157971		256	96,34289		
245	55,5184	12,95583	9,78507	2021-03-10T10:50:05Z	1319870	6158002		257	740,1331		
246	55,51852	12,95685	7,844538	2021-03-10T10:52:27Z	1319935	6158013		258	65,56946		
247	55,51857	12,95941	10,28617	2021-03-10T10:55:25Z	1320097	6158011		259	162,087		
248	55,5129	13,13282	39,925	2021-03-10T13:39:20Z	1331020	6156945		260	10975,03		
249	55,51276	13,13262	39,33396	2021-03-10T13:40:46Z	1331007	6156930		261	20,01848		
250	55,51188	13,13083	34,96053	2021-03-10T13:43:29Z	1330890	6156837		262	149,4683		
251	55,50775	13,11411	34,50716	2021-03-10T13:58:09Z	1329817	6156419		263	1151,984		
252	55,50674	13,11569	34,76255	2021-03-10T14:01:09Z	1329912	6156302		264	150,9004		
253	55,50604	13,1168	33,01004	2021-03-10T14:02:52Z	1329979	6156221		265	104,95		
254	55,45063	13,12297	41,01243	2021-03-10T14:55:25Z	1330131	6150041		266	6182,076		

255	55,4512	13,12369	37,69982	2021-03-10T15:01:41Z	1330178	6150102		267	77,81162		
256	55,45188	13,12478	36,23451	2021-03-10T15:04:05Z	1330250	6150175		268	101,9771		
257	55,49991	12,96387	7,728027	2021-03-10T15:46:33Z	1320293	6155924		269	11497,2		
258	55,49935	12,96374	6,134318	2021-03-10T15:48:23Z	1320282	6155862		270	62,47564		
259	55,49798	12,96337	6,580555	2021-03-10T15:50:31Z	1320253	6155710		271	154,6571		
260	55,50786	12,93924	0,982719	2021-03-10T16:11:00Z	1318774	6156872		272	1880,672		
261	55,50816	12,93998	4,59441	2021-03-10T16:12:59Z	1318822	6156904		273	57,43897		
262	55,50879	12,94141	6,11795	2021-03-10T16:14:42Z	1318915	6156970		274	114,0064		
263	55,65351	13,05505	18,92722	2021-03-12T08:23:50Z	1326730	6172784		275	17639,51		
264	55,65325	13,0553	17,09197	2021-03-12T08:25:01Z	1326745	6172754		276	33,11709		
265	55,65262	13,05547	17,16029	2021-03-12T08:27:03Z	1326753	6172684		277	70,81137		
266	55,66312	13,07341	9,133387	2021-03-12T08:45:58Z	1327927	6173807		278	1625,608		
267	55,66296	13,07275	10,5332	2021-03-12T08:47:22Z	1327885	6173791		279	44,91544		
268	55,66278	13,07046	7,393555	2021-03-12T08:50:05Z	1327741	6173777		280	145,3562		
269	55,69251	13,08952	2,417543	2021-03-12T09:22:23Z	1329069	6177038		281	3520,687		
270	55,69298	13,08989	1,001623	2021-03-12T09:23:51Z	1329095	6177089		282	57,3582		
271	55,69374	13,09055	1,443775	2021-03-12T09:26:03Z	1329139	6177173		283	94,97253		
272	55,70396	13,06014	1,732274	2021-03-12T09:59:27Z	1327273	6178384		284	2225,127		
273	55,70387	13,06024	1,287242	2021-03-12T10:00:10Z	1327279	6178375		285	11,19953		
274	55,7028	13,06212	-2,36862	2021-03-12T10:03:32Z	1327393	6178251		286	167,7098		

275	55,73613	13,05139	5,150364	2021-03-12T10:33:57Z	1326866	6181986		288	3771,622		
276	55,73638	13,05154	4,694739	2021-03-12T10:35:34Z	1326877	6182014		289	30,31629		
277	55,73728	13,05325	4,289729	2021-03-12T10:40:32Z	1326988	6182110		290	146,4797		
278	55,77169	12,93142	1,887639	2021-03-12T12:26:57Z	1319498	6186250		291	8557,77		
279	55,77064	12,93031	2,279242	2021-03-12T12:29:44Z	1319424	6186136		292	136,447		
280	55,76917	12,92867	5,179914	2021-03-12T12:33:11Z	1319314	6185976		293	194,0369		
281	55,7666	12,95864	4,750278	2021-03-12T13:20:31Z	1321182	6185613		294	1903,291		
282	55,76679	12,95882	4,039732	2021-03-12T13:21:35Z	1321194	6185633		295	24,07211		
283	55,76749	12,95992	3,932522	2021-03-12T13:23:49Z	1321267	6185709		296	104,3563		
284	55,76515	12,98271	5,21518	2021-03-12T13:40:03Z	1322686	6185390		297	1454,601		
285	55,7653	12,98268	5,486272	2021-03-12T13:41:06Z	1322684	6185406		298	16,09383		
286	55,7662	12,98258	2,477788	2021-03-12T13:42:55Z	1322683	6185507		299	101,0572		
287	55,75433	13,02323	-0,17489	2021-03-12T14:36:14Z	1325179	6184083		300	2874,199		
288	55,75541	13,02213	-1,91805	2021-03-12T14:39:58Z	1325115	6184206		301	138,8321		
289	55,75612	13,0222	-3,21658	2021-03-12T14:42:09Z	1325123	6184284		302	78,87039		
290	55,78653	13,1551	20,03942	2021-03-12T15:25:44Z	1333592	6187341		303	9003,773		
291	55,78719	13,15296	18,71335	2021-03-12T15:28:47Z	1333461	6187419		304	152,7009		
292	55,78773	13,15171	18,74139	2021-03-12T15:31:05Z	1333385	6187482		305	98,8328		
293	55,76926	13,17778	28,99952	2021-03-12T15:53:09Z	1334941	6185365		306	2627,747		
294	55,76953	13,17817	28,63389	2021-03-12T15:54:50Z	1334967	6185394		307	39,02359		

295	55,77027	13,17965	27,6846	2021-03-12T15:56:42Z	1335063	6185473		308	124,1325		
296	55,50542	13,83722	45,54527	2021-03-15T09:07:45Z	1375479	6154625		309	50843,2		
297	55,50601	13,83645	40,32284	2021-03-15T09:10:31Z	1375432	6154692		310	82,07285		
298	55,50672	13,83474	43,226	2021-03-15T09:12:55Z	1375326	6154774		311	133,9686		
299	55,44441	13,90237	-0,65159	2021-03-15T09:56:50Z	1379408	6147720		313	8149,872		
300	55,4446	13,90277	-2,07253	2021-03-15T09:59:05Z	1379434	6147741		314	33,63782		
301	55,44486	13,90335	-2,61022	2021-03-15T10:00:21Z	1379471	6147768		315	45,91839		
302	55,44696	13,80454	41,34512	2021-03-15T10:54:30Z	1373227	6148179		316	6257,816		
303	55,4469	13,80487	37,92692	2021-03-15T10:55:52Z	1373248	6148171		317	22,34175		
304	55,4467	13,80602	30,53236	2021-03-15T10:57:48Z	1373319	6148147		318	75,49602		
305	55,44872	13,72913	34,29351	2021-03-15T11:25:26Z	1368462	6148514		319	4871,063		
306	55,44865	13,72908	32,87208	2021-03-15T11:27:02Z	1368459	6148506		320	8,003971		
307	55,44812	13,72844	26,6957	2021-03-15T11:28:16Z	1368417	6148449		321	71,17338		
308	55,4283	13,66346	25,82541	2021-03-15T11:51:36Z	1364238	6146367		322	4668,051		
309	55,42834	13,66292	25,50002	2021-03-15T11:52:56Z	1364204	6146373		323	34,58568		
310	55,42859	13,66134	22,23443	2021-03-15T11:54:42Z	1364105	6146404		324	103,9679		
311	55,44023	13,62866	39,73042	2021-03-15T12:17:06Z	1362077	6147764		325	2441,955		
312	55,43981	13,62873	38,9232	2021-03-15T12:18:39Z	1362080	6147717		326	47,10879		
313	55,43881	13,62871	37,39048	2021-03-15T12:20:34Z	1362075	6147606		327	111,8053		
314	55,42209	13,54627	20,24775	2021-03-15T13:03:32Z	1356799	6145912		328	5541,703		

315	55,42233	13,54787	18,47555	2021-03-15T13:05:59Z	1356901	6145935		329	105,099		
316	55,4231	13,55009	16,73498	2021-03-15T13:08:44Z	1357045	6146017		330	164,7385		
317	55,42208	13,54621	18,22368	2021-03-15T13:20:41Z	1356795	6145910		331	271,131		
318	55,42224	13,545	17,18327	2021-03-15T13:22:55Z	1356719	6145931		332	78,82174		
319	55,42271	13,54335	15,82754	2021-03-15T13:24:54Z	1356616	6145986		333	116,9185		
320	55,45625	13,17015	31,98522	2021-03-15T14:35:52Z	1333138	6150551		334	23918,23		
321	55,45582	13,17038	30,39816	2021-03-15T14:37:51Z	1333151	6150503		335	49,63313		
322	55,45499	13,17093	29,12004	2021-03-15T14:39:33Z	1333182	6150410		336	98,90764		
323	55,55639	13,25546	44,70738	2021-03-16T09:00:35Z	1338942	6161493		337	12490,99		
324	55,55656	13,25513	46,34395	2021-03-16T09:03:31Z	1338922	6161513		338	28,49875		
325	55,55727	13,25329	47,01405	2021-03-16T09:06:10Z	1338809	6161596		339	140,6684		
326	55,58156	13,26768	35,78939	2021-03-16T09:30:01Z	1339815	6164267		340	2853,66		
327	55,58152	13,26841	35,44519	2021-03-16T09:31:21Z	1339861	6164260		341	46,72381		
328	55,58135	13,2698	37,61789	2021-03-16T09:33:22Z	1339948	6164238		342	89,27724		
329	55,57468	13,2989	39,19137	2021-03-16T09:53:49Z	1341755	6163430		343	1980,242		
330	55,57402	13,2991	38,55108	2021-03-16T09:55:32Z	1341765	6163355		344	74,9		
331	55,57316	13,29921	36,61025	2021-03-16T09:57:16Z	1341769	6163259		345	96,13147		
332	55,58341	13,3472	40,63937	2021-03-16T10:32:43Z	1344835	6164292		346	3235,722		
333	55,58363	13,3457	38,46458	2021-03-16T10:36:53Z	1344741	6164319		347	97,9044		
334	55,58387	13,34513	36,54791	2021-03-16T10:38:51Z	1344707	6164347		348	44,69517		

335	55,57767	13,35956	50,02386	2021-03-16T11:01:54Z	1345592	6163626		349	1141,784		
336	55,57729	13,35933	48,57607	2021-03-16T11:03:31Z	1345575	6163583		350	45,19312		
337	55,57685	13,35917	46,80976	2021-03-16T11:04:33Z	1345564	6163535		351	49,60258		
338	55,60444	13,38554	29,07272	2021-03-16T11:27:04Z	1347334	6166547		352	3493,104		
339	55,60468	13,38564	27,99246	2021-03-16T11:28:36Z	1347341	6166573		353	27,3553		
340	55,60535	13,38592	28,89661	2021-03-16T11:29:52Z	1347361	6166648		354	77,23117		
341	55,63928	13,42054	60,6204	2021-03-16T11:55:20Z	1349672	6170348		355	4362,698		
342	55,63842	13,42022	59,65858	2021-03-16T11:57:32Z	1349648	6170253		356	97,86078		
343	55,63724	13,41969	59,03396	2021-03-16T11:59:40Z	1349611	6170122		357	135,9967		
344	55,62904	13,33137	27,42321	2021-03-16T12:50:21Z	1344019	6169405		358	5637,985		
345	55,6285	13,33331	26,11838	2021-03-16T12:53:08Z	1344139	6169340		359	136,5516		
346	55,62804	13,33527	27,23727	2021-03-16T12:55:03Z	1344260	6169285		360	133,5265		
347	55,54434	12,93107	8,620944	2021-03-17T08:33:58Z	1318427	6160953		361	27144		
348	55,54427	12,92966	9,534369	2021-03-17T08:37:42Z	1318337	6160949		362	89,69073		
349	55,54411	12,92928	8,233639	2021-03-17T08:38:39Z	1318312	6160932		363	30,00779		
350	55,51621	13,1533	38,49125	2021-03-17T09:31:06Z	1332327	6157264		364	14487,13		
351	55,5168	13,15324	32,10976	2021-03-17T09:32:27Z	1332326	6157330		365	66,26593		
352	55,49285	13,1398	40,22172	2021-03-17T09:58:54Z	1331375	6154698		366	2799,17		
353	55,49241	13,13999	36,42191	2021-03-17T10:00:07Z	1331385	6154647		367	51,36718		
354	55,4912	13,14056	35,98028	2021-03-17T10:02:08Z	1331416	6154511		368	139,3508		

355	55,40371	13,02023	2,56894	2021-03-17T11:16:07Z	1323424	6145075		369	12366,01		
356	55,40276	13,02209	1,030315	2021-03-17T11:19:17Z	1323537	6144965		370	158,2854		
357	55,40178	13,02422	-0,60515	2021-03-17T11:21:55Z	1323668	6144850		371	173,5849		
358	55,385	13,12538	1,744745	2021-03-17T12:02:03Z	1330001	6142732		372	6678,249		
359	55,38617	13,12451	0,395987	2021-03-17T12:04:36Z	1329951	6142864		373	141,1015		
360	55,38682	13,12399	-1,11195	2021-03-17T12:14:59Z	1329921	6142937		374	79,70536		
361	55,43059	13,0958	23,51628	2021-03-17T13:14:02Z	1328325	6147877		375	5190,776		
362	55,43065	13,09644	24,53103	2021-03-17T13:15:37Z	1328366	6147882		376	41,4035		
363	55,43062	13,09832	25,3717	2021-03-17T13:17:31Z	1328485	6147875		377	118,7606		
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366	55,49941	12,94479	-4,15089	2021-03-17T14:27:49Z	1319086	6155918		380	53,31151		
367	55,50449	12,94201	-1,45354	2021-03-17T14:58:38Z	1318933	6156490		381	591,7081		
368	55,5044	12,94296	-1,50497	2021-03-17T15:01:11Z	1318993	6156478		382	60,83037		
369	55,50432	12,94416	-0,9947	2021-03-17T15:02:33Z	1319069	6156466		383	76,58716		
370	55,53243	12,9231	2,829058	2021-03-17T16:04:23Z	1317868	6159649		384	3401,822		
371	55,53215	12,92466	1,601025	2021-03-17T16:06:31Z	1317966	6159613		385	103,2843		
372	55,53197	12,92527	1,936439	2021-03-17T16:08:01Z	1318004	6159592		386	43,72406		
373	55,6564	13,06192	11,17529	2021-03-18T08:54:44Z	1327175	6173088		387	16317,84		
374	55,65529	13,06167	11,56152	2021-03-18T08:57:04Z	1327155	6172965		388	124,8925		

375	55,65379	13,06151	11,61173	2021-03-18T08:59:24Z	1327138	6172798		389	167,812		
376	55,75633	13,01975	2,639942	2021-03-18T10:10:35Z	1324970	6184314		390	11718,2		
377	55,75617	13,02171	3,738016	2021-03-18T10:13:17Z	1325092	6184291		391	124,6238		
378	55,75612	13,02237	1,705357	2021-03-18T10:15:03Z	1325133	6184284		392	41,41552		
379	55,93341	13,11006	68,67542	2021-03-18T11:51:47Z	1331405	6203795		393	20493,73		
380	55,93308	13,10977	70,7884	2021-03-18T11:53:08Z	1331386	6203759		394	40,87895		
381	55,93267	13,10943	66,53445	2021-03-18T11:54:08Z	1331363	6203714		395	50,41336		
382	55,77967	12,93478	0,384895	2021-03-18T14:07:26Z	1319746	6187129		396	20248,79		
383	55,7799	12,93538	2,025318	2021-03-18T14:08:43Z	1319785	6187153		397	45,56479		
384	55,78026	12,93634	5,381477	2021-03-18T14:10:01Z	1319846	6187191		398	72,51169		
385	55,76274	12,92092	5,044388	2021-03-18T14:27:54Z	1318798	6185282		399	2177,778		
386	55,76401	12,91805	3,062504	2021-03-18T14:31:31Z	1318624	6185430		400	228,6272		
387	55,76455	12,91675	3,019287	2021-03-18T14:35:05Z	1318545	6185494		401	102,1891		
388	55,7666	12,95867	4,074963	2021-03-18T15:05:30Z	1321184	6185613		402	2642,37		
389	55,76644	12,95904	4,887672	2021-03-18T15:07:57Z	1321207	6185593		403	29,55802		
390	55,766	12,96	1,756588	2021-03-18T15:09:20Z	1321264	6185543		404	76,94796		
391	55,77072	13,05658	9,560856	2021-03-18T16:01:05Z	1327344	6185823		405	6086,264		
392	55,77058	13,05683	5,563328	2021-03-18T16:02:36Z	1327359	6185807		406	21,99778		
393	55,76072	13,09729	27,69247	2021-03-18T16:27:07Z	1329854	6184609		407	2767,433		
394	55,76002	13,09717	25,061	2021-03-18T16:30:28Z	1329844	6184531		408	78,53237		

395	55,75921	13,09707	23,79665	2021-03-18T16:32:08Z	1329834	6184442		409	90,40432		
396	55,5491	13,07087	44,67797	2021-03-19T08:18:30Z	1327267	6161126		410	23456,51		
397	55,54856	13,07101	42,87995	2021-03-19T08:22:22Z	1327274	6161066		411	60,56443		
398	55,54807	13,07131	44,33549	2021-03-19T08:23:11Z	1327291	6161010		412	58,0146		
399	55,52187	13,08295	45,48644	2021-03-19T08:46:01Z	1327910	6158066		413	3009,121		
400	55,52157	13,08262	41,15174	2021-03-19T08:48:14Z	1327888	6158034		414	38,60371		
401	55,52027	13,0806	39,71286	2021-03-19T08:51:01Z	1327755	6157894		415	193,4442		
402	55,48545	13,12384	40,01007	2021-03-19T09:26:40Z	1330335	6153913		416	4744,22		
403	55,48525	13,12301	38,22682	2021-03-19T09:28:12Z	1330282	6153892		417	56,66686		
404	55,48468	13,12059	32,99753	2021-03-19T09:30:31Z	1330126	6153835		418	165,9743		
405	55,34997	13,38531	1,65882	2021-03-19T11:08:31Z	1346332	6138229		419	22498,42		
406	55,35101	13,38704	-0,42658	2021-03-19T11:11:37Z	1346446	6138341		420	159,9517		
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408	55,45921	13,47166	42,00013	2021-03-19T12:35:34Z	1352215	6150199		422	13133,51		
409	55,45924	13,47168	42,48385	2021-03-19T12:39:10Z	1352217	6150202		423	3,671989		
410	55,46002	13,47119	40,08896	2021-03-19T12:41:33Z	1352189	6150290		424	92,21503		
411	55,48652	13,47579	48,18353	2021-03-19T13:15:22Z	1352579	6153229		425	2965,41		
412	55,48645	13,47554	46,75659	2021-03-19T13:16:45Z	1352562	6153221		426	18,08989		
413	55,48592	13,47457	46,35252	2021-03-19T13:18:16Z	1352500	6153165		427	84,65149		
414	55,50729	13,49185	55,45178	2021-03-19T14:13:44Z	1353671	6155506		428	2618,35		

415	55,50685	13,49183	54,1338	2021-03-19T14:15:13Z	1353667	6155458		429	49,03109		
416	55,50633	13,49182	53,04097	2021-03-19T14:16:21Z	1353665	6155400		430	57,68163		
417	55,51755	13,51656	59,60595	2021-03-19T14:46:07Z	1355269	6156597		431	2001,439		
418	55,51791	13,51554	56,58135	2021-03-19T14:49:18Z	1355206	6156639		432	76,26804		
419	55,51821	13,51449	54,75571	2021-03-19T14:51:45Z	1355141	6156674		433	73,92389		
420	55,52527	13,44283	72,70718	2021-03-19T15:20:42Z	1350643	6157612		434	4594,852		
421	55,52574	13,44491	68,4007	2021-03-19T15:23:12Z	1350776	6157660		435	141,3599		
422	55,52585	13,44596	68,59145	2021-03-19T15:24:38Z	1350843	6157670		436	67,55019		
423	55,76965	13,31967	-4,93901	2021-03-21T09:38:21Z	1343844	6185079		437	28288,76		
424	55,76961	13,3196	-6,38553	2021-03-21T09:39:44Z	1343839	6185075		438	6,526876		
425	55,76924	13,31716	-13,0195	2021-03-21T09:42:37Z	1343685	6185039		439	158,5811		
426	55,72248	13,50923	28,49767	2021-03-21T10:38:11Z	1355562	6179418		440	13140,14		
427	55,72276	13,50805	29,21067	2021-03-21T10:39:59Z	1355489	6179452		441	80,28909		
428	55,72296	13,50709	29,16967	2021-03-21T10:41:17Z	1355429	6179477		442	64,51319		
429	55,67948	13,49834	19,01077	2021-03-21T12:10:36Z	1354718	6174656		443	4873,133		
430	55,68025	13,49802	19,8106	2021-03-21T12:12:35Z	1354701	6174742		444	88,3111		
431	55,68065	13,49794	18,49647	2021-03-21T12:14:03Z	1354697	6174787		445	44,94783		
432	55,72324	13,5072	31,8952	2021-03-21T13:04:58Z	1355437	6179507		446	4777,34		
433	55,72265	13,50773	30,73897	2021-03-21T13:07:02Z	1355468	6179440		447	73,8314		
434	55,72207	13,50833	26,4206	2021-03-21T13:11:27Z	1355503	6179375		449	73,95582		

435	55,64579	13,31632	21,13865	2021-03-21T13:58:04Z	1343138	6171303		450	14766,96		
436	55,64751	13,31677	18,85397	2021-03-21T14:01:12Z	1343173	6171493		451	193,1149		
437	55,64911	13,31697	20,67863	2021-03-21T14:04:37Z	1343192	6171670		452	178,6075		
438	55,62862	13,33141	28,21481	2021-03-21T14:27:36Z	1344019	6169358		453	2455,973		
439	55,6286	13,3319	28,09393	2021-03-21T14:29:05Z	1344050	6169354		454	31,46769		
440	55,62856	13,33295	27,0866	2021-03-21T14:30:47Z	1344116	6169348		455	65,87262		
441	55,52159	12,93791	54,24532	2021-03-22T09:02:50Z	1318753	6158404		456	27623,69		
442	55,52154	12,93957	50,64675	2021-03-22T09:05:17Z	1318858	6158393		457	105,1666		
443	55,52157	12,94078	49,76487	2021-03-22T09:06:37Z	1318935	6158394		458	76,79001		
444	55,39209	13,08835	7,362122	2021-03-22T10:15:56Z	1327686	6143611		459	17178,94		
445	55,39047	13,09141	4,735561	2021-03-22T10:21:12Z	1327873	6143424		460	264,5239		
446	55,39011	13,09163	6,010231	2021-03-22T10:23:13Z	1327886	6143383		461	42,815		
447	55,52025	13,09421	49,77419	2021-03-22T11:37:42Z	1328614	6157858		462	14493,42		
448	55,51916	13,09483	46,16747	2021-03-22T11:40:16Z	1328649	6157735		463	128,0778		
449	55,51875	13,09505	47,51655	2021-03-22T11:41:35Z	1328661	6157689		464	47,63376		
450	55,46656	13,14196	35,94668	2021-03-22T12:40:45Z	1331399	6151767		465	6524,115		
451	55,46629	13,14231	35,19114	2021-03-22T12:42:10Z	1331421	6151736		466	38,0751		
452	55,4664	13,14279	34,77388	2021-03-22T12:43:31Z	1331451	6151747		467	32,51932		
453	55,46675	13,14337	33,659	2021-03-22T12:44:53Z	1331489	6151785		468	53,64622		
454	55,5202	13,08515	36,4001	2021-03-22T13:07:49Z	1328042	6157874		469	6997,609		

455	55,52005	13,08524	36,38959	2021-03-22T13:08:43Z	1328047	6157858		470	17,5643		
456	55,51958	13,0855	38,35184	2021-03-22T13:09:35Z	1328061	6157805		471	54,97881		
457	55,53758	13,05471	31,09154	2021-03-22T14:10:40Z	1326197	6159885		472	2793,296		
458	55,53811	13,05465	30,84057	2021-03-22T14:12:38Z	1326196	6159943		473	58,70427		
459	55,53855	13,05457	32,53769	2021-03-22T14:13:57Z	1326193	6159993		474	49,36025		
460	55,5268	13,04517	33,12975	2021-03-22T14:29:20Z	1325547	6158708		475	1437,118		
461	55,52631	13,04478	30,43565	2021-03-22T14:31:44Z	1325520	6158655		476	59,85107		
462	55,52587	13,04441	30,79541	2021-03-22T14:32:55Z	1325495	6158607		477	54,02915		
463	55,50138	12,94531	3,251446	2021-03-22T14:57:38Z	1319128	6156135		478	6830,485		
464	55,50138	12,9463	4,513065	2021-03-22T14:59:19Z	1319190	6156133		479	62,77291		
465	55,50136	12,94699	4,101017	2021-03-22T15:00:21Z	1319233	6156129		480	43,23294		
466	55,50638	12,94032	1,114475	2021-03-22T15:18:24Z	1318836	6156705		481	699,7541		
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469	55,61548	13,09994	11,77482	2021-03-23T08:29:07Z	1329389	6168440		4831	15561,24		
470	55,61545	13,09995	12,50293	2021-03-23T08:31:27Z	1329390	6168437		484	2,735656		
471	55,6163	13,09967	7,975268	2021-03-23T08:33:35Z	1329376	6168532		485	95,91648		
472	55,61663	13,09948	7,382671	2021-03-23T08:34:48Z	1329365	6168569		486	38,46637		
473	55,7448	13,14076	22,97877	2021-03-23T10:29:36Z	1332514	6182732		487	14508,17		
474	55,74498	13,13964	21,08789	2021-03-23T10:31:44Z	1332444	6182754		488	73,12492		

475	55,74513	13,13868	22,3393	2021-03-23T10:32:51Z	1332385	6182774		489	62,45517		
476	55,71901	13,06066	9,370071	2021-03-23T11:21:49Z	1327372	6180059		490	5700,896		
477	55,7186	13,06172	6,377293	2021-03-23T11:23:51Z	1327437	6180010		491	81,23662		
478	55,71767	13,06371	1,838721	2021-03-23T11:33:24Z	1327558	6179902		492	162,0857		
479	55,70995	13,0539	2,026811	2021-03-23T12:31:08Z	1326908	6179068		493	1057,526		
480	55,70952	13,05391	2,696233	2021-03-23T12:33:03Z	1326907	6179020		494	47,8937		
481	55,70912	13,05408	0,589469	2021-03-23T12:34:10Z	1326915	6178975		495	45,90259		
482	55,70932	13,04588	-1,6985	2021-03-23T12:47:06Z	1326401	6179017		496	516,5006		
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484	55,72439	13,03817	8,098229	2021-03-23T13:43:09Z	1325983	6180713		498	132,8895		
485	55,72546	13,03647	9,160866	2021-03-23T13:45:36Z	1325881	6180836		499	160,2508		
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487	55,65795	13,06392	9,341206	2021-03-23T14:33:14Z	1327308	6173255		501	87,46444		
488	55,65862	13,06365	8,491909	2021-03-23T14:34:45Z	1327294	6173330		502	76,57849		
489	55,66409	13,09505	15,58217	2021-03-23T14:54:59Z	1329293	6173861		503	2068,618		
490	55,66337	13,09581	10,44834	2021-03-23T14:57:14Z	1329338	6173780		504	93,04837		
491	55,66311	13,09604	10,98442	2021-03-23T14:58:17Z	1329351	6173750		505	32,64637		
492	55,72874	13,03189	7,172091	2021-03-23T16:00:09Z	1325608	6181213		506	8349,321		
493	55,72815	13,02977	7,5872	2021-03-23T16:03:12Z	1325473	6181153		507	148,5624		
494	55,72786	13,02853	7,101553	2021-03-23T16:04:36Z	1325393	6181123		508	84,85625		

495	55,75041	13,00612	9,220432	2021-03-23T16:47:27Z	1324088	6183690		509	2879,591		
496	55,75046	13,00703	6,55769	2021-03-23T16:49:03Z	1324145	6183693		510	57,86479		
497	55,75049	13,00845	3,788406	2021-03-23T16:50:31Z	1324234	6183692		511	88,74414		
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