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DOI
10.21606/drs.2024.195

Publication date
2024

Document Version
Final published version

Published in
DRS2024: Boston

Citation (APA)
van der Leun, J., Kolks, L., & Van Eekelen, B. F. (2024). Gulls on the move? Synanthropic design in the Dutch Delta. In C. Gray, E. Ciliotta Chehade, P. Hekkert, L. Forlano, & P. Ciuccarelli (Eds.), *DRS2024: Boston: Proceedings* Design Research Society. https://doi.org/10.21606/drs.2024.195

Jun 23rd, 9:00 AM - Jun 28th, 5:00 PM

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Citation

van der Leun, J., Kolks, L., and F. van Eekelen, B. (2024) Gulls on the move? Synanthropic design in the Dutch Delta, in Gray, C., Ciliotta Chehade, E., Hekkert, P., Forlano, L., Ciuccarelli, P., Lloyd, P. (eds.), *DRS2024: Boston*, 23–28 June, Boston, USA. https://doi.org/10.21606/drs.2024.195

DRS BOSTON 20 DRS 24 JUNE 24 — 28

Gulls on the move? Synanthropic design in the Dutch Delta

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doi.org/10.21606/drs.2024.195

Abstract: This article develops a synanthropic design approach. The Port of Rotterdam currently houses one of Europe's largest colonies of the synanthropic species of Lesser Black-backed Gulls. The thriving of this particular colony is entangled with human interventions and economic activities in the larger Dutch Delta. We map the managerial, legal, political, and economic interrelations and dependencies that animate the human and more-than-human contact zone. By including a gull's perspective on the Dutch delta environment, this study aims to support the facilitated coexistence of humans and Lesser Black-backed Gulls in the Port of Rotterdam – now and in the future. The synanthropic design interventions and new governance model proposed in this study show how the Port of Rotterdam can be re-imagined as "Land of Gulls and Humans."

Keywords: More-than-Human Design; Synanthropic Design; Delta studies; Avian worlds; Lesser Black-backed Gull

1. Introduction: Synanthropic design

Whether we imagine the world as an entangled knot or not, as human beings we share the world with other organisms, such as bacteria, fungi, plants, and animals (Haraway, 2007; Tsing, 2013; Tsing et al., 2021; Van Dooren et al., 2016). The very idea of cohabitation with other species, however, has often proven to be challenging for human-centered designers. However, in areas where human environmental impact is pressing upon our shared life-worlds, we sense the need to consider our impact on and entanglement with the lives of other organisms (Bazzaz et al., 1998; McKibben, 2005; Van Patter, 2021). In this article, we answer the appeal to design for forms of more-than-human coexistence (Jaque et al., 2020) with what we call *synanthropic design*.

Synanthropic species are species capable of adapting to a variety of human activities to ensure their population growth and/or to extend their habitat (Johnston, 2001). In this study,

we home in on the Lesser Black-backed Gull (LBBG) in the Dutch Delta. The LBBG is an example of a synanthropic species, as this animal often lives near humans, and this proximity is mediated by human actions. Throughout the 20th century, human activities have led to changes in the environment of the LBBG, not only affecting its settlement patterns but also its population size (Camphuysen, 2013). However, animals that follow humans are often not appreciated (Furness & Monaghan, 1987), and human-gull interdependencies have led to frictions in specific settings and contexts. Hence, our research question: How can synanthropic design support the sustainable cohabitation of humans and LBBGs in the Dutch Delta?

Synanthropic design takes as its starting point that in urbanized areas that simultaneously double as nature, such as the Port of Rotterdam (PoR), dense coexistence of humans and synanthropic species needs to be facilitated and acknowledged rather than counteracted. It does not seek to disentangle zones of conflict, but designs for coexistence in the world *as is*. To do so, we first study managerial, legal, political, and economic interrelations and dependencies that animate the human and more-than-human contact zone. Synanthropic design pairs this more-than-human relational approach with the systemic insight that change in one element (e.g. fishery laws) brings about changes in others (e.g. LBBG population size). To design for coexistence, this dynamic view is complemented with site-specific ecological attention to the affordances of the changing lifeworlds for synanthropic species.

2. Entanglements, affordances, and systemic design

In this study, we blend a more-than-human perspective with systemic design research to *learn* about the intricacies of LBBG-human entanglements, and to *develop* interventions that support sustainable cohabitation of both species in the Dutch Delta. As a synanthropic species, LBBGs' lives are deeply intertwined with both human and non-human others (such as fish and foxes). We draw on more-than-human approaches to multispecies living to study the specific “patterns of relationality” that make up and alter LBBGs' lifeworlds (Haraway, 2007, p. 17; Tsing, 2019; van Dooren, 2014). To create a space for intervention in the world of the Dutch Delta, we also draw from systemic design (Van der Bijl-Brouwer & Malcolm, 2020; Buchanan, 2019). Systemic design describes phenomena as systems whose “essential properties arise from the relationships between [their] parts” (Capra, 1997, p. 27). We describe human-LBBG cohabitation in the Dutch Delta as a system by setting a pragmatic geographic boundary and by highlighting several key elements and their dynamic relations. Elements that range from the presence of the fox, to European legislation on North Sea fishing practices, to interventions that explicitly target breeding LBBGs.

In addition to fleshing out human-gull entanglements, we tend to LBBG’s ways of assessing the world in order to design our synanthropic interventions (see also Smith et al., 2017). Following James Gibson’s (1979) theory of affordances, organisms only start to interact with an environment if it affords them something. Gibson describes the affordances of an environment as “what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill” (1979,

p. 127, italics in original). Affordances can thus both enable *and* hinder. Instead of being understood as generic (or even "universal") physical properties, affordances "have to be measured *relative* … to the posture and behavior of the animal being considered" (Gibson, 1979, pp. 127-128, italics in original). Therefore, through a literature review and interviews with experts, this study examines what is afforded to the species of *Homo sapiens* and *Larus fuscus* specifically, by environments that they both use intensively. While these affordances might simultaneously serve the aims of humans and synanthropic LBBGs, they can also lead to frictions. The insights drawn from this research have informed the reframing of the PoR as a territory *shared* by both LBBGs and humans. As a consequence, we propose a number of synanthropic design interventions, as well as a new governance model.

3. Synanthropy in action

3.1 Human-gull entanglements in the Dutch Delta

In this study, we focus on LBBGs in the Dutch Delta: a coastal area that stretches from Rotterdam to Terneuzen (Figure 1). This is a relatively compact (30,000 hectare) area that includes the province of Zeeland as well as the city and the port of Rotterdam. The Dutch Delta's geographical location – where salt- and freshwater meet – has attracted a rich variety of flora and fauna (Staatsbosbeheer, n.d.). It has designated "nature" areas, as well as opportunities for economic development. We chose this region because roughly 40% of all LBBG breeding pairs in the Netherlands currently breed in the Dutch Delta (Lilipaly & Sluijter, 2022). More specifically, they mainly breed in port areas such as *Sloegebied Borsele Vlissingen,* the Port of Moerdijk, and – most importantly – the Port of Rotterdam (Sovon, n.d.) (Figure 1). Almost 20,000 LBBG breeding pairs currently breed in the PoR (Arts & Janse, 2021), making it one of the largest colonies in Europe.

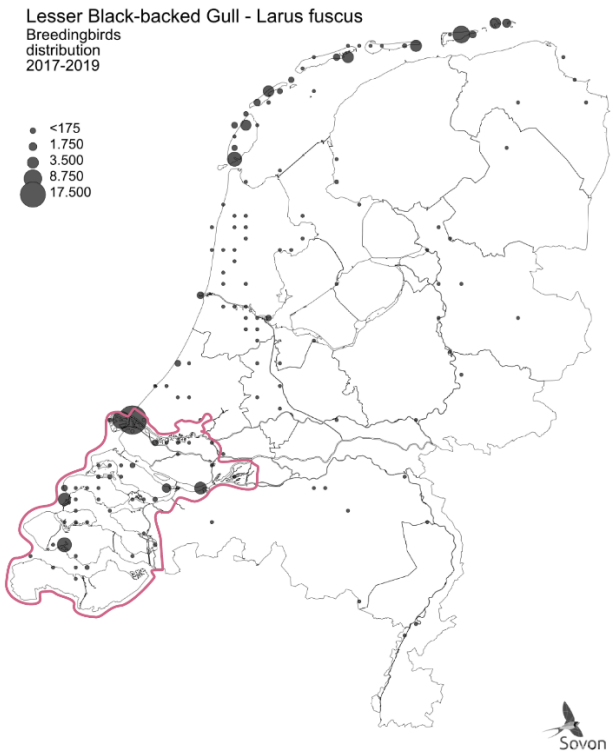

Figure 1 Distribution of LBBGs in the Netherlands, with the Dutch Delta highlighted in pink. Source: Sovon.

Even though LBBGs are typically loyal to their breeding grounds, since the 1980s their colonies have been displaced from the North Sea coastal dunes to large vacant lots on industrial sites in the Dutch Delta, as well as to urban environments (Spaans, 1998). In the 1980s, the fox colonized the dune areas, and in response, the gull relocated to industrial harbor areas (Spaans, 1998), which offered a generous supply of suitable breeding grounds surrounded by fresh water. Moreover, the harbor sites provided quick access to abundant food supplies from nearby fisheries. As such, the PoR has become of vital importance to LBBGs in the Netherlands.

The LBBG is protected by European Law under the Birds Directive, which prohibits the killing or injuring of LBBGs, and the destruction of LBBG eggs and nests (Sundseth, 2015). To maintain a minimum population size in the Netherlands, a national target number of 43,000 pairs has been set by law (Natura 2000, 2008).

However, the Port of Rotterdam Authority (PoRA) and established businesses within the harbor area often consider (breeding) gulls a nuisance. PoR companies are regularly bothered by the LBBGs' territorial behavior, especially between the months of May and August when gulls are most ferociously defending their nests (Spencer & Dickins, 2014). Moreover, companies want to exploit some of the grounds they breed on to build new warehouses. Yet, given their protected status during the breeding season, the only way for parties to legally intervene is to prevent LBBGs from nesting (Arts & Janse, 2021), or by applying for exemptions (Thissen et al., 2022).

In so doing, commercial activities in the PoR are negatively affecting the breeding success of LBBGs. While not yet an emergency numerically speaking, these factors could eventually lead to population collapse. Moreover, ecologist and gull expert Roland-Jan Buijs (personal communication, 14 November 2022) states that the disturbances of LBBG colonies are causing the population to disperse both into urban areas (Schekkerman et al., 2021), where new human-gull conflicts are emerging (Freriks, 2023), and into areas in the Delta designated as "nature reserves," where they may threaten other coastal breeding species.

3.2 A species of routines

Around 40% of all LBBG pairs in the Netherlands (between 75,000 and 90,000) breed in the Dutch Delta (Boele et al., 2020). As introduced before, they mainly mate in the Delta's port areas, with roughly 20,000 LBBG pairs breeding in the PoR alone (Arts & Janse, 2021). However, as elaborated below, an increasing number of LBBGs have started to move to urban areas in and beyond the Delta, in particular to roofs (Sovon, 2023). While this study focuses on LBBGs residing in the PoR, this area is inextricable from other areas in the Dutch Delta, including urban and coastal areas and the North Sea.

Ecologists observe that every year, after spending the winter in warmer regions, LBBGs typically return to the same nesting area (Huig & Kleyheeg, 2015; Vanermen et al., 2022). Hence, LBBGs that nested in the PoR the year before, return the following year to seek out approximately the same nesting site – and they have specific reasons for doing so.

LBBGs generally show a relatively high degree of pair fidelity: they appear to favor breeding with the same mate (Del Hoyo et al., 1996; Huig & Kleyheeg, 2015). When, in the spring, the male and female of a former breeding pair return from separate regions, they are only able to find each other again through visual cues and voice recognition (Brown, 1967 as cited in O'Connell, 1995). Thus, returning to the exact same geographical location enhances the former LBBG pair's chances to reunite.

Furthermore, this routine behavior is related to this species' particular ways of social organization. LBBGs are a gregarious species. They live in colonies. A strict territorial structure exists within these large flocks, in which LBBGs defend their breeding spot. According to Eric Stienen (personal communication, January 25, 2023) – seabird research coordinator at the Research Institute for Nature and Forest (INBO) – LBBGs defend a "micro-territory" of up to two meters around the nest (see also, Spencer & Dickins, 2014), and form bonds with their direct neighbors, so that they don't have to engage them in territorial disputes. In short, coming back to the exact same location offers them the advantage of not having to fight with new neighbors to defend their nesting spot repeatedly.

All in all, the LBBG can be seen as *a species of routines*, as it favors to breed each year within the same colony, in the same place, preferably with the same partner (Del Hoyo et al., 1996; Huig & Kleyheeg, 2015). Moreover, they like to forage in the same areas (Vanermen et al., 2022).

3.3 Why certain industrial sites make great LBBG breeding grounds

In this study, the Dutch Delta is taken as a system to learn about interdependent relations – entangled and mutually constituting – between the LBBG and several meaningful elements, such as pipeline zones, automated harbor activities, nature conservation legislation, gull harassment measures, waste, specific vegetation, and the (Red) fox (*Vulpes vulpes*). By investigating these elements in relation to each other, we aim to understand how change in one element brings about change in others. These insights help us develop interventions that support sustainable LBBG-human cohabitation in the PoR.

Between the mid-1980s and the 1990s, a significant number of LBBGs relocated from the North Sea dune landscape to industrial sites in the Dutch Delta (Spaans, 1998). This migration was mainly driven by a human-induced increase of foxes in the Netherlands. By the end of the 1960s, foxes had reappeared in specific areas along the Dutch North Sea (Mulder, 2005). A European anti-rabies vaccination campaign targeting wild foxes in the mid-1980s resulted in their rapid population growth in the Netherlands (Schneider & Cox, 1988; Delcourt et al., 2022). Consequently, many LBBGs relocated to coastal areas that were more difficult to reach for foxes. These included sites within the industrial landscape of Rotterdam's harbor area (especially the *Maasvlakte* and the *Europoort*). While offering a reprieve from foxes, the port's location along the North Sea coast also afforded these "migrant LBBGs" a chance to continue their marine food diet (R-J. Buijs, personal communication, November 14, 2022).

Within the premises of the PoR, LBBGs mainly breed on vacant lots and pipeline zones. LBBGs prefer large flat and square areas – such as the PoR's vacant lots (Figure 2) – that afford them to breed in large colonies (Arts & Janse, 2021). Flat sites simultaneously afford individual gulls to keep an eye on other members of their colony – cannibalism is well-known amongst LBBGs (Camphuysen, 2011) – and enable them to spot other predators, such as foxes, in time. Pipeline zones are 10-meter-wide strips of land above a network of underground pipelines that companies in the PoR use to transport chemical substances. In case of an emergency, these underground pipelines need to be quickly reachable. Therefore, the PoRA keeps pipeline zones as empty – and thus also free of vegetation – as possible (Steketee, 2011). As such, these strips of land afford LBBGs most of the breeding circumstances they prefer.

Next to offering a plenitude of suitable breeding grounds, the PoR affords LBBGs an environment with relatively little human presence, due to the port's ever-increasing use of automation (see, e.g., Witschge, 2019). Moreover, its geographical location near the Delta Works – a series of storm surge barriers that protect large parts of the Netherlands from flooding by regulating the inflow and outflow of both sea and river water – affords LBBGs an abundant supply of fresh water, which LBBGs and their chicks use to drink and cool down (E. Stienen, personal communication, January 25, 2023).

LBBGs in the Dutch Delta forage on land and at sea (Vanermen et al., 2022). Those colony members that depend on marine food resources initially relied primarily on discarding (Camphuysen & Gronert, 2010). EU enforced national fishing quotas led to fishing practices in which all catch that was not economically viable – whether undersized or bycatch – was discarded at sea before bringing it ashore, providing birds with easy-to-catch "leftover" seafood. Whereas these discards used to be abundant in the North Sea, in 2015 the EU started implementation of an official discard ban in order to reduce the pressure on fishing stocks and prevent wasteful fishing practices (Heinrich, 2021). While gulls currently still benefit from trawlers when fish slip through the meshes of the nets, the number of active trawlers that are part of the Dutch fleet have shown a notable decline from around the time this law was introduced (Wageningen University & Research, 2023).

Figure 2 Large, flat, vacant lots in the PoR, adjacent to fresh and salt water, meet LBBG breeding preferences. Source: M. Sluijter.

3.4 Frictions and LBBG management

The omnipresence of the LBBG in the PoR leads to various human-gull frictions and friction-mitigation-policies. To economically exploit vacant lots in the PoR, the PoRA systematically targets LBBGs with dogs, birds of prey, and automatic lasers – another example of the PoR's focus on automation – to prevent them from nesting on these sites (Thissen et al., 2022). Perhaps anticipating LBBGs' routine behavior, these precautionary actions are sometimes initiated years before the actual economic development of a plot starts (Wolf & Moes, 2017).

LBBG breeding is also counteracted in other ways. With companies involved as a sounding board, the Fauna Management Unit of South Holland, through an official Fauna Management Plan (FMP), applied for exemptions against the birds' legal protected status during the breeding season (Lensink, 2015). Workers are sometimes subject to (mock) attacks from parent birds during breeding season. With LBBGs increasingly breeding on the PoR's business-premises (for example near installations, or on storage tanks), these companies have felt

compelled to intervene. The FMP argued for measures to be taken against breeding LBBGs such as deliberately disturbing the birds, and (in exceptional cases) removing or displacing nests, to "safeguard public health, public safety and air traffic safety" (Lensink, 2015, pp. 13-16). Next to taking precautionary actions, LBBG nests were also "treated" on a large scale by spraying the eggs with corn oil, shaking, pinching, or removing them. Actions that had to be repeated throughout the season, as LBBGs repeatedly laid new eggs.

However, prompted by European legislation, and recognizing that past, current, and future developments might result in an undesirable decline and uncontrollable dispersal of current LBBG populations in the Dutch Delta (Arts & Janse, 2021), PoRA has been compelled to offer gulls a more sustainable perspective. Therefore, the port authorities of Rotterdam, Antwerp, and the North Sea Port joined forces with nature conservation organizations to develop a vision document, called the *Meeuwenvisie* (Gull vision), to achieve sustainable conservation of large gull species in the Dutch Delta (Arts & Janse, 2021).

In the PoR, this gull vision document led to the designation of "suitable" breeding sites, including newly-minted breeding sites. Hoping to attract gulls to these sites, the grass is mowed, objects that provide shelter are placed, and bait and artificial gulls await them. However, luring gulls has proven to be very difficult (Stienen & Courtens, 2010). As LBBGs prefer to breed on the grounds they have used before, they will keep trying to do so year after year (R-J. Buijs, personal communication, November 14, 2022). It therefore remains to be seen if these newly designated areas will truly be colonized, and colonization takes about 15 years (Stienen & Courtens, 2010). Over time, gull colonies may or may not occupy these assigned sites, and disturbed colony members may settle in other places, including roofs in urban areas.

3.5 The fox returns

While the exploitation of PoR plots disturbs the lives of LBBGs, some of their former breeding grounds in the PoR have also become unsuitable due to the arrival of the fox in 2019. Therefore, while a species of routines, gulls in the PoR are on the move. They relocate to places that foxes can't reach, such as the gated premises of companies and the roofs of warehouses (Gunneweg, 2022).

An updated version of the FMP for 2022-2027 acknowledges that the number of LBBGs in the PoR has declined so significantly that former large-scale "nest treatment" interventions are being halted, and displacement and destruction of nests is limited even further (Thissen et al., 2022). Following a recommendation in this updated FMP, PoRA installed electric fences to protect LBBGs breeding on ground-level industrial sites against foxes (Arts & Janse, 2021; Gunneweg, 2022), further blurring the lines between industrial sites and "nature reserves" in the Dutch Delta.

3. Reimagining the Land of Gulls and Humans

The PoR is meaningful to both gulls and humans as it is home to large LBBG colonies and simultaneously functions as an important hub for human economic activity. LBBGs are, moreover, a synanthropic species and thus capable of adapting to a variety of human and non-human activities to ensure their population growth and/or to extend their habitat (Johnston, 2001). Moreover, observations have shown that they can react in unpredictable ways and will not be "managed," or even lured, easily (Stienen & Courtens, 2010). Instead of approaching human-gull interactions in the PoR as nuisances or a source of conflict, we propose to reframe the PoR as a habitat shared by humans and LBBGs alike.

Our synanthropic design proposals focus on a particular area within the PoR which we reimagine as "Land of Gulls and Humans." Land of Gulls and Humans is located in *Europoort West*, a PoR area that is home to one of the largest colonies of LBBGs in Europe, with approximately 13,000 breeding pairs (Lilipaly & Sluijter, 2022).This established colony has existed since the 1980s. It has a high nest density which makes it particularly significant for the procreation of LBBGs, as the breeding success of gulls is positively correlated with their nest density (Parsons, 1976).

Land of Gulls and Humans consists of a redesign of two different spatial configurations where gulls and humans coexist, and which are currently considered significant zones of tension. We deliberately take *present* (area-specific) ecological, economic and political circumstances into account as parameters to design with.

The proposal for the first contact zone – a pipeline zone that simultaneously doubles as a breeding ground (Figure 3) – is rather sketch-like, whereas the proposed interventions for the second contact zone – at *De Kop van Beer* (Figure 5) – are more detailed. Our short-term strategy of focusing on coexistence-supporting design proposals that might be feasible within current circumstances underpins a far-reaching long-term proposition: we consider the PoR a human-avian living space in which humans learn not to live *alongside* LBBGs, but to live *with* them. As such, our synanthropic design approach features both problem-*solving* as well as problem-*setting* elements (Kolks, 2023).

4. Synanthropic design: Intersection

Many gulls lay their eggs and raise their chicks in areas along pipeline zones, which for safety reasons are always found alongside roads. Since the 1980s, the pipeline zone along the *Markweg* in *Europoort West* has been particularly popular among LBBGs; around 700 pairs breed there yearly (PoRA employee, personal communication, November 4, 2022). The *Markweg* (Figure 3) connects the *Europoort* to the A15 highway and is mainly used by employees, clients, and truck drivers. The adjacent bike path is used by PoR company employees who cycle to their work, as well as visitors. In the years to come, *De Kop van Beer* will be developed into Rotterdam Food Hub, which will attract more traffic. Apart from the fact that the fox threatens the gulls there, the road poses its own challenges. A fence already separates the colony from the road, but as the chicks grow larger they fly onto the road, and at

night they use the heated road surface to stay warm (E. Stienen, personal communication, January 25, 2023). This behavior can be fatal to the chicks and regularly startles truck drivers (Thissen et al., 2022).

Our first intervention reimagines the pipeline zone along the *Markweg* as a gateway to the Land of Gulls and Humans. More bird space is created by lifting the bicycle path and creating a fly-over for cyclists, where they are afforded a look over the colony. A new, raised fence ensures that the fox is kept outside the breeding area, and simultaneously ensures LBBGs chicks are less likely to end up on the road. The fence anchors several arches (Figure 4) that bridge the adjacent road. Gulls can sit on these arches, allowing them to keep an overview of their surroundings and look at moving humans. The arches, moreover, highlight the entrance and exit of the Land of Gulls and Humans to motorists. Hence, through this intervention, this enduring LBBG colony is explicitly acknowledged rather than merely tolerated.

Figure 3 The current layout of a pipeline zone along the Markweg, a popular breeding ground for LBBGs (April, 2023). Source: J. van der Leun.

Figure 4 Intersection: a redesign of the pipeline zone along the Markweg. Source: J. van der Leun.

5. Synanthropic design: Elevation

A large part of the PoR consists of reclaimed land that features low vegetation which affords LBBGs shelter from the weather and some protection from predators (Calladine, 1997). After years of being a vacant lot where about 12,000 gull pairs were breeding, *De Kop van Beer* (Figure 5) is currently being developed into the Rotterdam Food Hub. The area is slowly being transformed into a warehouse-landscape. Due to the arrival of the fox in the PoR, LBBGs are "moving up": they try to breed on warehouse roofs that are currently unsuitable to do so as they are typically covered with black bitumen or EPDM that heats up in summertime, causing chicks to die (R-J. Buijs, personal communication, November 14, 2022). Therefore our second intervention, Elevation (Figure 6), transforms warehouse roofs in the Land of Gulls and Humans into suitable LBBG breeding grounds. While people labor in the warehouses, gulls use the roofs above their heads as their breeding ground. These Avian Roofs consist of two design elements: Nesting Hubs and Avian Roof Edges.

Figure 5 The popular breeding site De Kop van Beer (April, 2023). Source: J. van der Leun

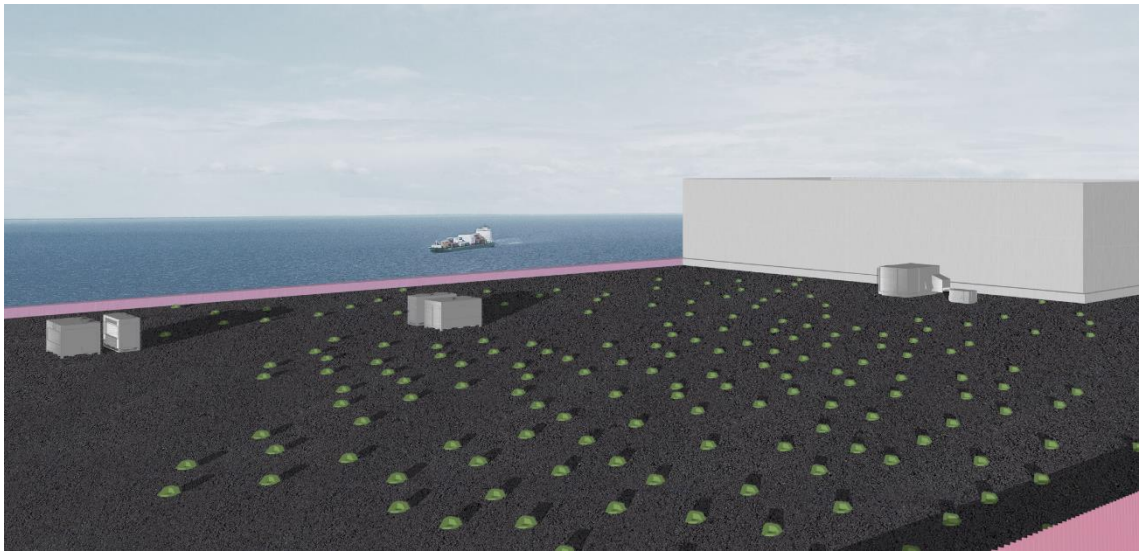

Figure 6 Elevation: the roof of an industrial warehouse featuring an Avian Roof Edge and multiple Nesting Hubs (in green). Source: J. van der Leun.

5.1 Nesting Hubs

The design of the Nesting Hub seeks to translate certain affordances of former LBBG breeding sites at ground level to warehouse roofs. The Nesting Hub (Figure 7) is an object that affords birds to make nests on these roofs – which regularly warm up – without having to bring insulating nesting material themselves (R-J. Buijs, personal communication, November 14, 2022). The vertical shield of the Nesting Hub shelters gulls from sea winds and the predatory behavior of other gulls, while maintaining a view of the surroundings. The design draws upon the insight that LBBGs prefer nest sites that are "a compromise between differing concealment or defense strategies at different stages of the breeding cycle" (Calladine, 1997, p. 319).

At their original breeding grounds, vegetation fulfills this role perfectly. At the start of the breeding season, low vegetation affords the visibility that is needed for the parenting birds to defend their young, while also reducing the necessary visual contact among LBBGs, which allows the parents to rest. Once the vegetation is fully grown, the growing chicks can use it to hide themselves. These dynamic and changing affordances of living plants had to be translated into a less dynamic object, in this case: the design of the Nesting Hub's "shield."

The position of the Nesting Hub is aligned with the prevailing wind direction, since gulls consider the direction of the wind when choosing their nesting location (Becker & Erdelen, 1982). The back of the Nesting Hub provides opportunities for LBBG chicks to hide from predators. Moreover, they need shelter to avoid visual and physical contact with neighboring adults to prevent cannibalism (Camphuysen, 2011). The asymmetrical design of the Nesting Hub's canopy is based on the sun path, affording chicks all-day shelter from the sun's heat.

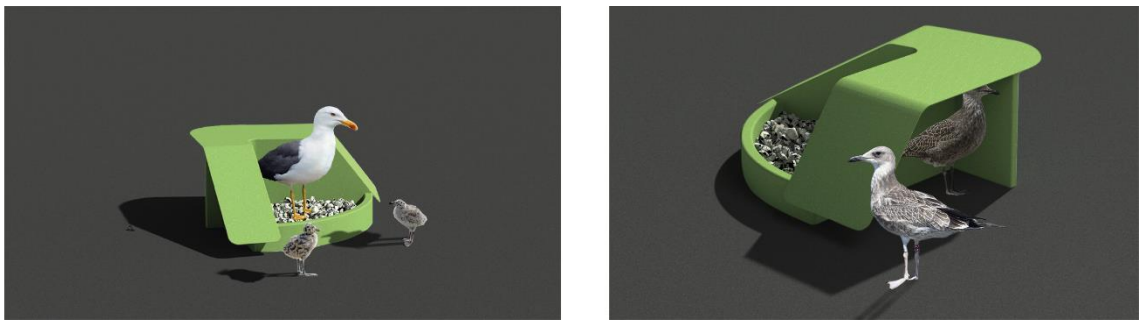

Figure 7 The Nesting Hub offers opportunities to breed and offers shelter for chicks. Source: J. van der Leun.

5.2 Avian roof edges

In addition to Nesting Hubs, our Elevation intervention features the Avian Roof Edge. During the breeding season, LBBG parents can be aggressive towards humans in the vicinity of nests. When LBBGs breed close to the roof edge of warehouses, employees are at risk of mock attacks if they are spotted by the gulls (E. Stienen, personal communication, January 25, 2023). The Avian Roof Edge will reduce this behaviour as the small spacing between the bars will prevent adult LBBGs from sitting on it. Simultaneously, we seek to highlight the presence of the LBBG colony on the roof to employees and visitors. Therefore, the Avian Roof Edge is given a distinctive pink color, to explicitly communicate the acknowledgement of LBBGs as full-fledged inhabitants of the Land of Gulls and Humans (Figure 8).

Figure 8 The design of a pink Avian Roof Edge communicates the acknowledgement of LBBG coin-habitants to humans. Source: J. van der Leun.

6. Governing synanthropic cohabitation

As we have discussed above, human-avian lifeworlds are co-constituted by legal, economic and managerial policies. To succeed, we propose a new governance model for these synan-thropic design interventions that includes a shared maintenance service (Figure 9) and a change in the lease policy of the PoR.

As the findings make clear, the LBBG does not act according to regional boundaries, or whether an area is designated as a “nature reserve” or vacant lot. We therefore recommend that the various stakeholders with an interest in the homing of gulls, organize themselves to create a shared service dedicated to the installation and maintenance of avian warehouse roofs in the PoR.

Since LBBGs prefer coming back to the exact same nesting location each breeding season, to prevent future dispersion it is essential to ensure that an Avian Roof stays an Avian Roof in the long term. Although the largest shareholders of the PoRA are the municipality of Rotterdam and the province of South Holland (Port of Rotterdam, 2024), it is ultimately the PoRA that actually leases the land to companies. PoRA’s lease agreements can, and should, stipulate the implementation of an Avian Roof for all new lots.

Figure 9 A maintenance worker cleaning an Avian Roof and Nesting Hubs at the end of the breeding season. Source: J. van der Leun.

7. Conclusion

By investigating how the lives of Lesser Black-backed Gulls (LBBGs) – as a synanthropic species – are entangled with human and non-human activities in the Dutch Delta, this project aims to support their cohabitation. Our study shows that this is an urgent matter, as human activities in the Port of Rotterdam (an important economic artery) might cause the Dutch LBBG population to collapse or disperse.

The objective of facilitated human-LBBG cohabitation in the Dutch Delta – an aim underpinned by EU legislation that obliges the Dutch state to protect LBBGs – proves to be challenging as LBBGs are *a species of routines*. The specific social organization of their colonies renders them a sedentary breed that is particularly difficult to “manage.” The fact that LBBGs are territorial, and thus sometimes act aggressively towards humans, further complicates human-LBBG cohabitation.

By zooming out, the synanthropic design case generates broader lessons for more-than-human design. It illustrates what needs to be considered for design to support fully acknowledged human-animal coexistence. We consider the knot of ecological, juridical, political and economic entanglements that make up the lifeworld of LBBGs, both to understand the dynamics of this human-avian contact zone, but also to intervene in it. To facilitate human-animal coexistence, we draw on insights from ecology, habitats and affordances to understand non-human and synanthropic perspectives. These varied but interrelated insights can be translated into actual design parameters related to specific spatial configurations.

As a first proof of concept, a test site featuring forty Nesting Hubs became operational in February 2024 on the roof of an industrial warehouse in the southern Dutch Delta (Figure 10). Through this test site a consortium of ecologists, the Dutch Society for the Protection of Birds, nestbox suppliers, a maritime company, and our team studies whether and how the Nesting Hubs support facilitated human-LBBG coexistence in the Dutch Delta during the 2024 breeding season.

The findings from this ongoing study underline not only the importance of new design methodologies, which this research contributes to, but also the need for multidisciplinary research to uncover the intertwining of issues involved in gulls on the move (Van den Akker et al., 2021).

Figure 10 Forty prototypes of Nesting Hubs are being tested on the roof of an industrial warehouse during the 2024 breeding season. Source: J. van der Leun.

Acknowledgements: We thank the anonymous reviewers who provided helpful comments on the previous version of this paper.

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