

REDRAWING THE LINES:
AN EXERCISE OF BOUNDARIES AND URBAN
INTERSPECIES BELONGING IN MIYAJIMA, JAPAN

by

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presented to the University of Waterloo
in fulfilment of the
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Master of Architecture*

*Waterloo, Ontario, Canada, 2020
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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public

ABSTRACT

Swarms of semi-wild, semi-tame Sika deer roam freely in both the primeval forested mountains and urbanized coastal town of Miyajima island. Rising deer populations and mass tourism has blurred the boundaries between human and deer territories, resulting in landscapes of intense interspecies frictions leading to declined deer health, human injuries, and degraded landscapes. Urgently, we must invent new ways of knowing and interacting with these non-human animals with whom we share a common habitat. This thesis asks: rather than pets or pests - could we recognize the deer as neighbours and co-inhabitants? How might we achieve this new perception of - and relationship to - the deer, through architectural and landscape interventions? A series of site functions and typologies are explored, testing methods of separation, stratification, coupling, and integration, in order to shift the human-deer balance of each site in sync with the seasonal flux of territorial needs. The explorations offer strategies for imagining alternate ways of interspecies living post-anthropocene.

ACKNOWLEDGEMENTS

A big thank you to my Thesis Research and Design Studio professor and committee member Jane Hutton (for inspiring the earlier stages of my explorations, and your excitement, faith, and encouragement for a project which in its infancy was neither orthodox or lucidly-defined); my thesis supervisor Maya Pырzybylski (for your incredible sharp intuition and words of support for both my project and myself); my internal and external critics Lola Sheppard and Geoff Thun and Carol Philips (for all your insightful comments and an exciting discussion during my thesis final review); Rie Usui (for sharing your research about the Sika deer, and a fantastic sake-filled tour of Hiroshima); Junya Terazawa (for being the kindest host, orienting me to Miyajima, and answering all of my never-ending questions about the deers and the island); Miku (for all your meows and purrs and emotional support in a place faraway from home); Laila Hossam (for surviving M3 together with me like two peas in a pod); Michelle Bullough (for being there in my time of need, and a fantastic roommate); Allegra Friesen (for always being there and for always understanding me); and my family — Rui, Lingmin, and Blair (for always supporting me despite not understanding all of the strange things that architecture school compels me to do).

Thank you to all the people I've come to know this past year because of my thesis — including all my studio peers from TRD1 and TRD2, all the students I've TA'd in ARCH225, and all my mentees from UWSA MAP. You've all taught me so much.

Thank you Miyajima, for having me. And thank you, little deer — in a world that continues to divide and turn everything against each other, thank you for giving me a place to start healing the rift.

To each of the human and non-human spirits who surround us in our daily lives: we may not share the same language, lifestyle, or genes — but may we continue to inspire and enrich each others existence.

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By author.

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By author.

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*By author. Information compiled from Stephen R. Kellert, “American Attitudes Toward and Knowledge of Animals: An Update,” *Advances in Animal Welfare Science* 1984, 1985, pp. 177-213, https://doi.org/10.1007/978-94-009-4998-0_11*

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By author. Information compiled from sources referenced in bibliography. Image bases from: <https://www.flickr.com/photos/7823190@N03/2327116448/> https://commons.wikimedia.org/wiki/File:St_Fagans_Celtic_village_palisade.jpg https://commons.wikimedia.org/wiki/File:Horse_mill_045493.jpg <https://www.flickr.com/photos/beca3k/2951584808> https://commons.wikimedia.org/wiki/File:Fredrick_Arthur_Bridgman,_The_Diversion_of_an_Assyrian_King._Oil_on_canvas._Sotheby%27s.jpg https://commons.wikimedia.org/wiki/File:Colosseum_interior_2012.jpg <https://www.pressreader.com/south-africa/farmers-weekly-south-africa/20190419/282518659893833> <https://endtrophyhuntingnow.com/2015/05/09/17567/factory-farming-pigs-crowded-in-pens-many/> Photography by Astrakan/Getty Images. https://www.rachaelraymag.com/.image/c_limit%2Ccs_srgb%2Cfl_progressive%2Cq_auto:-good%2Cw_700/MTYxMTM2MTQ0ODEyMDk-wNTQy/girl-smiling-with-dog-getty-661789463.jpg <https://www.mcleanvet.com/top-5-dog-parks-to-rono/>

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By author.

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By author.

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By author.

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By author.

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By author.

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studio.com/projects/oyster-tecture/.

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By author.

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By Author.

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By author.

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By author. Map base via https://www.freeusand-worldmaps.com/html/World_Projections/World-Print.html. Image bases via:

https://1.bp.blogspot.com/-Z2YcHsbv85o/T_E-zmjF87I/AAAAAAAAAF6c/jqZ_MQ2h-klw/s1600/miyajima_deer.jpg

<https://i.imgur.com/Glz0fho.jpg>

https://cdn2.i-scmp.com/sites/default/files/images/methode/2018/03/02/142493a4-1c61-11e8-804d-87987865af94_1320x770_161654.jpg

<https://media.globalnews.ca/videostatic/169/62/Racoon%202.jpg>

<https://render.fineartamerica.com/images/rendered/default/poster/10/8/break/images-medium/st-marks-square-pigeon-attack-venice-juan-carlos-ferro-duque.jpg>

https://s.abcnews.com/images/GMA/150312_gma_strahan2_0715_16x9_1600.jpg

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By author. Base information via GIS.

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By author. Base photographs by author.

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By author. Base information compiled via sources listed in bibliography.

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By author. Base information compiled via sources listed in bibliography. Base images by author, and via:

奈良の鹿 「鹿の国」の初めての本 (“The deer of Nara”).

<https://www.flickr.com/photos/longshaw/2118372069>.

https://data.ukiyo-e.org/jaodb/images/Kokunimasa_Utagawa-No_Series-Ladies_and_Deer_Miyajima-00035516-031225-F12.jpg.

https://commons.wikimedia.org/wiki/File:Deer_

dance_of_Tono_Town,_Iwate,_Japan.jpg.

Sika souvenirs photograph by author.

http://farm4.static.flickr.com/3042/2939469755_884376fb08_z.jpg?zz=1.

Sozu overlay by author. Base images via: https://en.wikipedia.org/wiki/Shishi-odoshi#/media/File:Higashiyama_Botanical_Garden_Shishiodoshi_20170617.gif

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By author. Base information compiled via sources listed in bibliography. Base photographs by author, and via:

<https://en.japantravel.com/nara/nara-deer-antler-cutting/23785>

Twitter一般財団法人奈良の鹿愛護会 @nara_aigokai. <https://www.businessinsider.sg/a-deer-in-japans-famous-nara-park-died-with-3-2kg-of-plastic-in-its-stomach/>.

Irina Fischer / Shutterstock.com.

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By author. Base photographs by author, and via: https://commons.wikimedia.org/wiki/File:Paul_Childerley_driven_hunt_Finland_04.png

https://commons.wikimedia.org/wiki/File:Kolmården_Wolf.jpg

https://upload.wikimedia.org/wikipedia/commons/4/4e/Zoysia_japonica_5.jpg

https://i0.wp.com/moonshinedesignsnursery.com/wp-content/uploads/2017/12/Miscanthus_Gracillimus6.jpg?fit=1352%2C1015&ssl=1.

<https://conifersociety.org/conifers/abies-firma/>

https://commons.wikimedia.org/wiki/File:Fagus_crenata_fruits.jpg

<http://bamboogarden.com/Pleioblastus%20chino.htm>

<https://www.gardenersworld.com/plants/aucuba-japonica-crotonifolia/>

<https://www.thetreecenter.com/tree-roots/>

https://commons.wikimedia.org/wiki/File:Autumn_Leaf_08Nov17.jpg

https://commons.wikimedia.org/wiki/File:Japanese_Maple_Bark_by_David_Shankbone.jpg

https://commons.wikimedia.org/wiki/File:Trochodendron_aralioides_09072.JPG

https://commons.wikimedia.org/wiki/File:Pieris_japonica_10.jpg

https://commons.wikimedia.org/wiki/File:Münster,_Park_Sentmaring_--_2016_--_1767.jpg

https://upload.wikimedia.org/wikipedia/commons/1/19/Arashiyama_Hanatōro%2C_Nison-in_嵐山花灯路・二尊院_紅葉と月_DSCF5361.JPG

https://commons.wikimedia.org/wiki/File:Horse-chestnut_800.jpg

https://commons.wikimedia.org/wiki/File:Tsuga_diversifolia_03.jpg

https://commons.wikimedia.org/wiki/File:Perilla_frutescens_in_Gimpo.jpg

Ashitaka, Flickr. <https://www.flickr.com/photos/iwahige/9740687304>

[https://commons.wikimedia.org/wiki/File:Pinus_sylvestriformis_\(Takenouchi\)T.Wang_ex_Cheng.JPG](https://commons.wikimedia.org/wiki/File:Pinus_sylvestriformis_(Takenouchi)T.Wang_ex_Cheng.JPG)

https://commons.wikimedia.org/wiki/File:Symplocos_glauca_mimizbi02.jpg

https://commons.wikimedia.org/wiki/File:Apodemus_argenteus1123.jpg

<https://www.inaturalist.org/taxa/45563-Apodemus-speciosus>

<https://commons.wikimedia.org/wiki/File:ApodemusSylvaticus.jpg>

https://commons.wikimedia.org/wiki/File:Lepus_brachyurus,_March,_Tsukuba,_Japan.jpg

https://commons.wikimedia.org/wiki/File:Lepus_brachyurus,_March,_Tsukuba,_Japan.jpg

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By author. Base photographs by author.

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By author. Base images via:
<https://img.youtube.com/vi/JRmWcnddu9k/sdd-efault.jpg>
<https://media.timeout.com/images/105473245/630/472/image.jpg>
<https://www.fieldoperations.net/project-details/project/the-high-line.html>

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和田聖子, June 2019.

Maria Jesus Luceno, August 2017.

Via Google Maps, https://www.google.com/maps/place/Miyajima+Guest+House+Mikuniya/@34.2945253,132.3212963,3a,102.2y,90t/data=!3m8!1e2!3m6!1shttps:%2F%2Fbstatic.com%2Fxd%2Fw%2Fhotel%2F840x460_watermarked_standard_bluecom%2FUI-5cFgPVxU5pzzEY10ViHaeqIN-OnP_EEG3H-duwLSD8j82f64mqZHTM5_CwjbxmxUi-HGh7D3DIUzauXgDGeGWFoArIwaRba-jlvKVhZ8VDYtMTCWhXtgZAd8LpEm0Ia3R.jpg!2e7!3e27!6s%2F%2Fh5.googleusercontent.com%2Fproxy%2F9sLN-sLGTl9I5EGvbx1m-612f6lqQAZEKGcgaqzyU2F2AzMMjIW2RscL-3cljhpMw5mtkcgIFuQPX_HT39zvrntPoHwiPYof-4NEmoP1H3XjMQfLRIDTBgLUORnoa4Bcuh41e-hc2rcsAVo7oGjo_sao-o8KbZFZg%3Dw218-h120-k-no!7i840!8i460!4m8!3m7!1s0x355ab0b63e7ec48b:0x15651dc32dba88aa!5m2!4m1!1i2!8m2!3d34.294647!4d132.321393

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By author. Information compiled via sources listed in bibliography. Base images via:

kindpng.com

favpng.com

kisspng.com

imgbin.com

pngfly.com

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By author.

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By author. Base images via: Chagaz'. et vous? May 2019.

https://www.google.com/maps/uv?hl=en&pb=!1s0x355ab0b63e7ec48b:3A0x15651dc32dba88aa!3m1!7e115!4shttps%3A%2F%2Fh5.googleusercontent.com%2Fp%2FAF1QipOI-4WLEr4SDgWH_0EIW6pKVH5GI08WNmM6p-pRHW%3Dw240-h160-k-no!5sguesthouse%20mikuniya%20-%20Google%20Search!15sCAE-SAGgG&imagekey=!1e10!2sAF1QipMbl6o1vN-WdksmHbTwlUKKv3fR-LrrObxQs3fqb&sa=X&ved=2ahUKEwjGzqLc1ZHnAhWWVc0K-HZa0A-QQoiowCnoECAwQBg

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By author.

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Existing deer use of space.

华北, May 2019.

白壁の街に住むオオツキ, May 2018.

Mirko Wächter, Aug 2017.

Dagmara Foks, June 2019.

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By author.

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By author.

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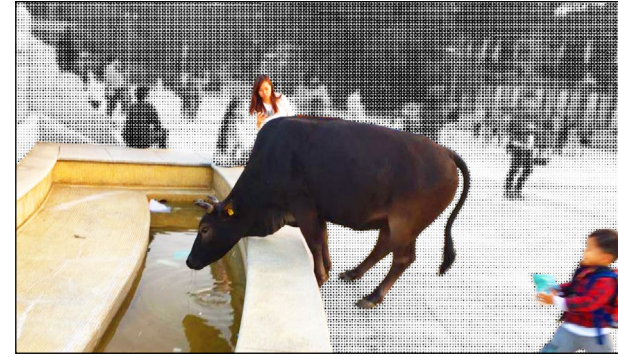
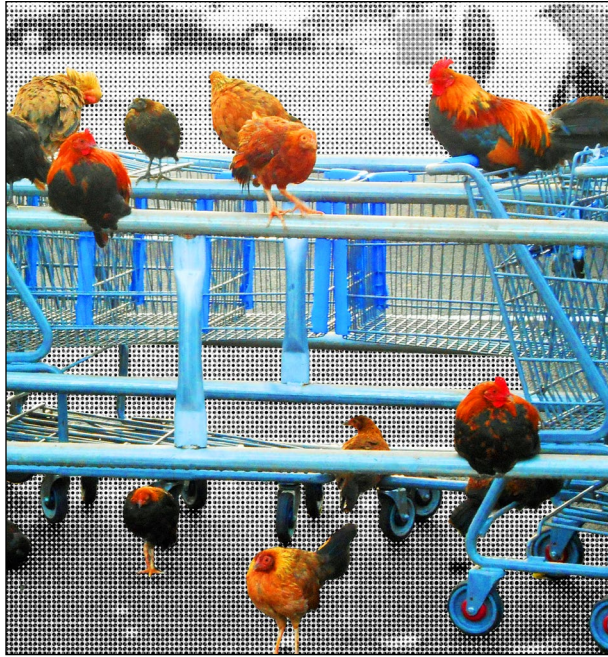
The gap of understanding and empathy between humans and deer.

By author.

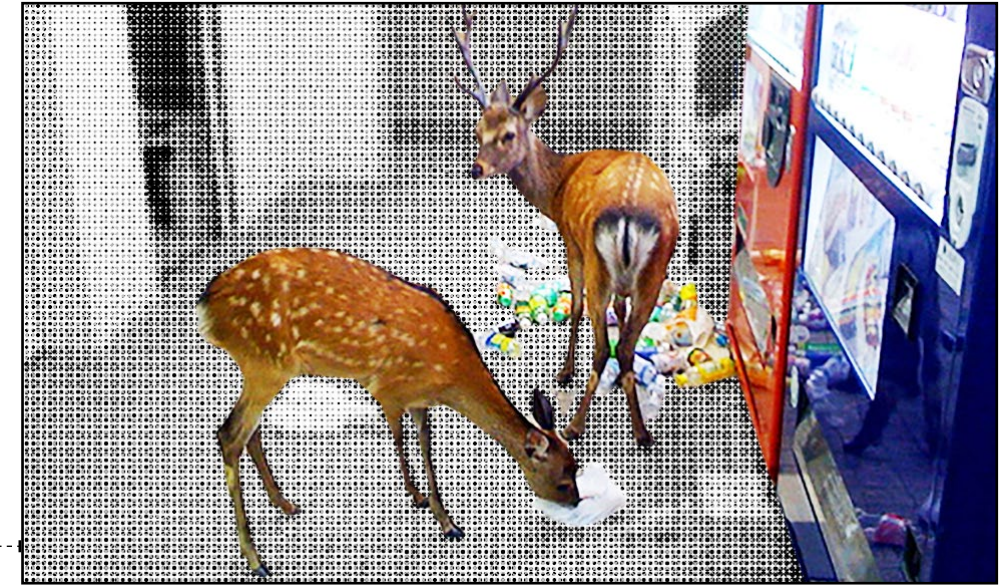
PART ONE:

HUMANS, ANIMALS, AND THE CITY

Gallus gallus / red jungle fowl
Kauai, Hawaii

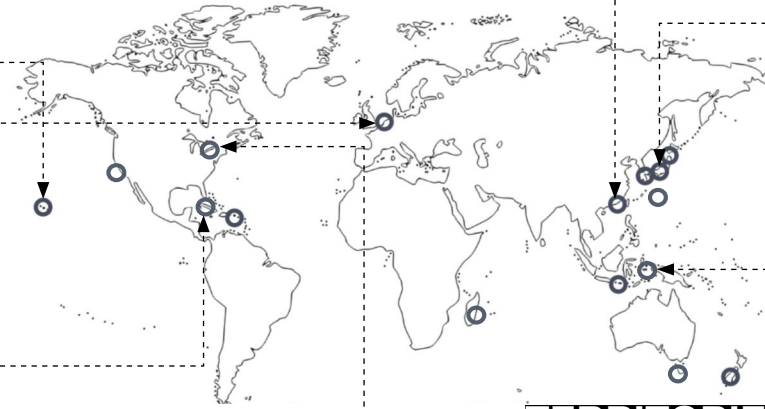
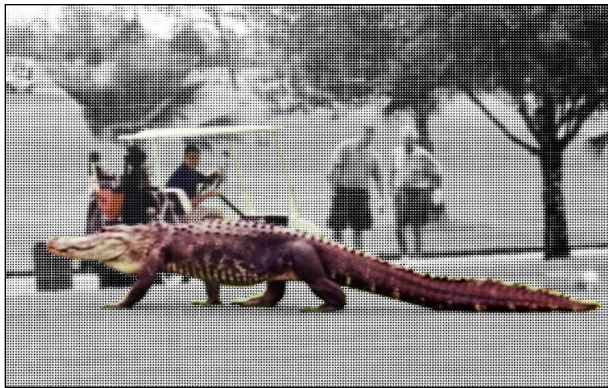


Bubalus bubalis / water buffalo
Lantau, Hong Kong

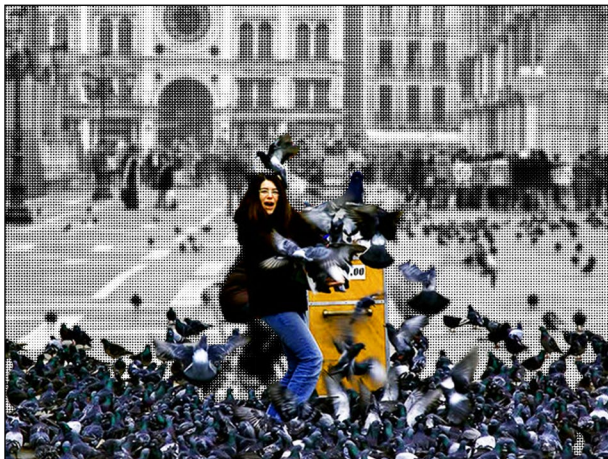


Cervus nippon / Japanese sika deer
Miyajima Island, Japan

Alligator mississippiensis / American gator
Gainesville, Florida



TERRITORIES OF HUMAN-ANIMAL FRICTIONS



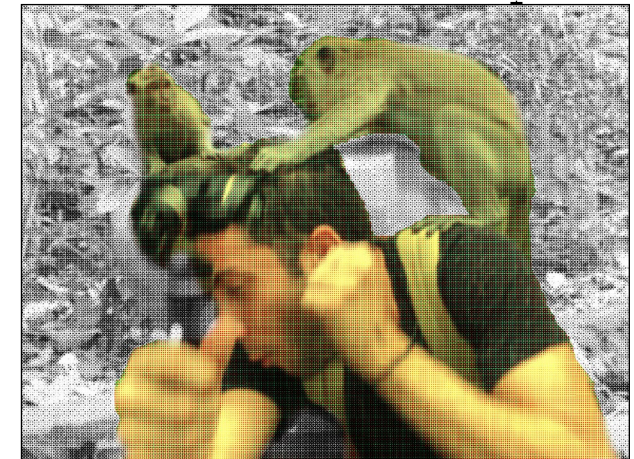
Columba livia domestica / domestic pigeon
Venice, Italy



Procyon lotor / common raccoon
Toronto, Canada



Branta canadensis / Canada goose
Waterloo, Canada



Macaca fascicularis / long-tailed macaque
Bali, Indonesia

Fig 1.1 Map of territories of urban human-animal frictions.

TERRITORIES OF HUMAN-ANIMAL FRICTIONS

Trash-digging raccoons, obnoxious honking geese, purse stealing macaques, stampeding wild cattle, aggressive pecking pigeons... these are some of the urban bestiary who live in our cities and trouble our daily lives. Due to contemporary globalization and unprecedented rates of urbanization, these animal species are finding their habitats either in ravaged ruins, or overtaken by human development. The fight for diminishing land and resources has exacerbated the frictions and collapse in human-animal relationships.

We must address an unsettling basic truth: *cities are nature*¹. It's not like an osprey flies into the Financial District and thinks, 'Oo, I'm in a city now.'² This arbitrary separation of the natural and the engineered urban territory is a human construct of convenience, a normative way of thinking that has been carried throughout the ages. Humans are, in fact, part of the natural order. Herein lies the conflict, then: *why do we feel so unsettled by urban animals? Why are we so uncomfortable with their existence in our shared cities?*

BETWEEN WILD AND TAME / THE PITFALLS OF RIGID BINARIES AND CATEGORIZATIONS

Since the cradle of civilization, we've always been designing for our own human survival, comfort, convenience, and overall benefit. This is deeply ingrained into our way of life and our way of thinking in the pervasive eurocentric perspective of colonization, and has been the dominating framework of thought for the settler population in North America. Advancements in technology multiplied the scale and severity in which these human-centric principles and practices impact the non-human realm around us — in *Questions Concerning Technology*, Heidegger lucidly highlights the modern reality of nature's shift into existence as a warehouse to serve human needs³. Stone is no longer quarried by hand, piece by piece, to be crafted into bespoke artifacts that each speak to the history of the material, the

1 For an easily digestible and whimsical journey in opening our eyes to all of the 'nature' that pervades and encompasses our cities, refer to Johnson, Nathanael. *Unseen City: the Majesty of Pigeons, the Discreet Charm of Snails & Other Wonders of the Urban Wilderness*. New York: Rodale, 2016.

2 Adapted based on sentiments of Dr. Eric Strauss, executive director for the Center for Urban Resilience at Loyola Marymount University-Los Angeles, in interview with CityLab.

3 Martin Heidegger and William Lovitt, *The Question Concerning Technology, and Other Essays* (New York: Harper Perennial, 2013)

skill of the maker, and the particular use of the refined product. Instead, strip-mining and mass production allows the total human domination and manipulation of the landscape for the accumulation of wealth. In *Capitalism and the Web of Life* and *Anthropocene or Capitalocene*, Moore notes that prevalent capitalist ideologies further intensifies the ruthless ravaging of the non-human natural world for the accumulation of human wealth⁴.

From this self-serving bias, we have populated our world with inherent ideas of speciesism, anthropocentrism, and human exceptionalism⁵, in which humans are deemed either the only beings that matter, or the beings that matter the most, with little regard for non-human animals, landscapes, and ecosystems. In particular, this is clearly reflected in the act of architectural design - we choose to filter and magnify or suppress certain characteristics of a site, based on what we as humans believe is good or bad, useful or troublesome, interesting or meaningless, and how it serves us.

We routinely and subconsciously classify non-human beings into categories which judge their usefulness to us as a species. These 'hyperseparations'⁶ are often polar extremes, and involve a hierarchy of desirability or power. As discussed in Michel Foucault's *Order of Things*, the act of categorization can produce incredibly absurd results:

"This book first arose out of a passage in [Jorge Luis] Borges, out of the laughter that shattered, as I read the passage, all the familiar landmarks of my thought—our thought that bears the stamp of our age and our geography—breaking up all the ordered surfaces and all the planes with which we are accustomed to tame the wild profusion of existing things, and continuing long afterwards to disturb and threaten with collapse our age-old distinction between the Same and the Other. This passage quotes a 'certain Chinese encyclopaedia' in which it is written that 'animals are divided into:

4 Jason W. Moore, *Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism* (Oakland(CA): PM Press, 2016) and Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (London: Verso, 2015).

5 See interview with Dr. Richard Ryder regarding speciesism in *The Superior Human?* prod. Dr Jenia Meng, dir. Samuel McAnallen, perf. Dr Bernard Rollin, Gary Yourofsky, Dr Richard Ryder, Dr Steven Best. Narrated by Dr Nick Gylaw. (Ultraventus, 2012), DVD, April 1, 2012, accessed November 8, 2018, <https://www.youtube.com/watch?v=mqT82oGeax0>.

6 As coined by Australian ecofeminist Val Plumwood.

- (a) belonging to the Emperor,
- (b) embalmed,
- (c) tame,
- (d) suckling pigs,
- (e) sirens,
- (f) fabulous,
- (g) stray dogs,
- (h) included in the present classification,
- (i) frenzied,
- (j) innumerable,
- (k) drawn with a very fine camelhair brush,
- (l) et cetera,
- (m) having just broken the water pitcher,
- (n) that from a long way off look like flies’.

In the wonderment of this taxonomy, the thing we apprehend in one great leap, the thing that, by means of the fable, is demonstrated as the exotic charm of another system of thought, is the limitation of our own, the stark impossibility of thinking that.”⁷

The farcical categories displayed here are easily to ridicule in hindsight, but invokes the question: what other haphazard and nonsensical labels have we put on to animal species? Just as Anna Tsing’s ethnographic work explores the many binaries which are forced upon the vegetation of the Indonesian landscape⁸, so too do we box-sort animal life forms as either natural or cultural, wild or domesticated, of utility and of nuisance. These rigid generalizations make it difficult for us to understand the life forms which exist between the gaps or within the overlaps of these mutually exclusive constructed society-nature binaries⁹. We are at a loss as to how we should

⁷ Michel Foucault, “Preface: Order of Things,” in *The Order of Things* (New York, NY: Pantheon, 1970), xv, as discussed in Anna Lowenhaupt. Tsing, ... *Friction: an Ethnography of Global Connection* (Princeton, NJ: Princeton University Press, 2005)

⁸ Anna Lowenhaupt. *Tsing, Friction: An Ethnography of Global Connection* (Princeton, NJ: Princeton University Press, 2005): pp. 171-202.

⁹ Described in Alice J. Hovorka, “Animal Geographies I: Globalizing and Decolonizing,” *Progress in Human Geography* 41, no. 3 (2016): pp. 382-394, <https://doi.org/10.1177/0309132516646291>, as summarized from Richard Howitt and Sandra Suchet-Pearson, “Rethinking the Building Blocks: Ontological Pluralism and the Idea of ‘Management,’” *Geografiska Annaler: Series B, Human Geography* 88, no. 3 (2006): pp. 323-335, <https://doi.org/10.1111/j.1468-0459.2006.00225.x>, and Juanita Sundberg, “Decolonizing Posthumanist Geographies,” *Cultural Geographies* 21, no. 1 (2013): pp. 33-47, <https://doi.org/10.1177/1474474013486067>.

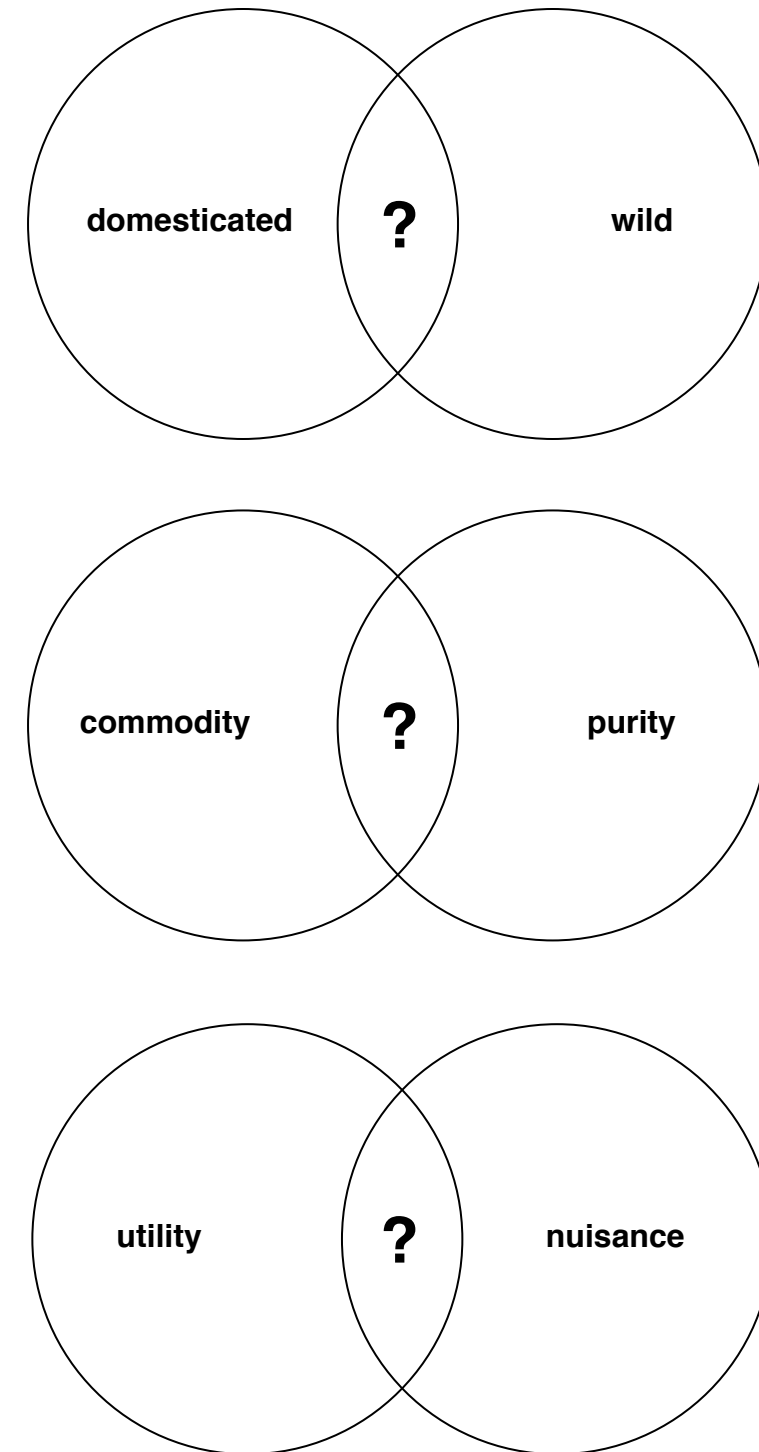


Fig 1.2. The human-centric constructed rigid binaries and categories reduce the ‘animal’ into a simple, static object, and leave no room for complexity, nuance, or flux.

interact with feral animals, who were once ‘of humans’ but are now neither wild nor domesticated¹⁰. We have difficulty mitigating our interactions and outlooks on animals of the city, who are neither our pets nor free spirits roaming in exotic wilderness. By abstracting and generalizing animals into these groups, we dismiss the varied nuances and subjectivities that exist between species, social groups, and individual animals, erase these important distinctions arising from individual circumstances, and ignore the vast networks of interconnectivity between all living beings.

The dangers of this automatic and deep-rooted abstraction and generalization manifests in an overabundance of historical events of disaster, in which both humans and non-humans suffer due to the self-serving desires and biased actions of human will. There have been many historical instances where the realities and outcomes of human intervention, based on human desires, brought forth unforeseen and catastrophic consequences. Examples include the namesake ‘cobra effect’ during the British colonial rule in India¹¹ and the similar ‘rat effect’ during the French colonial rule in Vietnam¹², China’s failed Four Pests Campaign under Mao’s Great Leap Forward¹³, and the unintended-yet-invited invasion of raccoons in Japan at the hands of a popular anthropomorphic children’s cartoon¹⁴. While these are some of the most well-known moments of failure and speak to humankind’s choosy and temperamental outlook on their interactions with nature and animal life, many more cases exist in between the everyday human-animal interactions around us.

While we must acknowledge the ease of categorizations and their limited usefulness in thinking and communications, perhaps we can begin to

10 For a localized example, see Lauren E. Van Patter and Alice J. Hovorka, “‘Of Place’ or ‘of People’: Exploring the Animal Spaces and Beastly Places of Feral Cats in Southern Ontario,” *Social & Cultural Geography* 19, no. 2 (April 2017): pp. 275-295, <https://doi.org/10.1080/14649365.2016.1275754>
 11 Dubner, Stephen J. (11 October 2012). “The Cobra Effect: A New Freakonomics Radio Podcast”. *Freakonomics, LLC*. Retrieved 24 February 2015.
 12 Vann, Michael G. (2003). “Of Rats, Rice, and Race: The Great Hanoi Rat Massacre, an Episode in French Colonial History”. *French Colonial History*. 4: 191–203. doi:10.1353/fch.2003.0027.
 13 Dvorsky, George. “China’s Worst Self-Inflicted Environmental Disaster: The Campaign to Wipe Out the Common Sparrow”. io9. Archived from the original on 2012-08-22. Retrieved 2017-04-25.
 14 Clark, Laura. “The Children’s Book That Caused Japan’s Raccoon Problem.” *Smithsonian.com*. Smithsonian Institution, March 16, 2015. <https://www.smithsonianmag.com/smart-news/childrens-book-behind-japans-raccoon-problem-180954577/>. Clark, Laura. “The Children’s Book That Caused Japan’s Raccoon Problem.” *Smithsonian.com*. Smithsonian Institution, March 16, 2015. <https://www.smithsonianmag.com/smart-news/childrens-book-behind-japans-raccoon-problem-180954577/>.

reimagine categories that are flexible, mergeable, expandible, fluid, and adaptable, to accommodate when new ideas don’t fit into existing categories, and when old ideas change through time.

A CHALLENGE OF PERCEPTIONS AND IDEALS

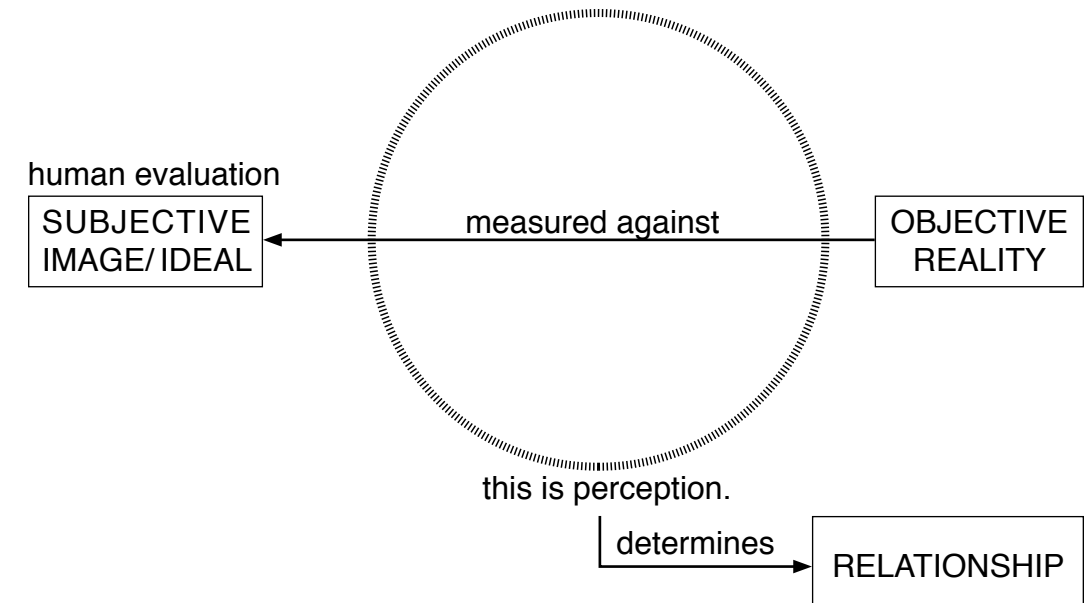


Fig 1.3 Flowchart of components that shape the relationships between us humans and other species.

We experience and understand the world through our perceptions. Being humans, our perceptions are indeed *human-centric*: we *know* fire as dangerous, because when we touch it, it harms us; we also *know* fire as useful, because when we process raw ingredients with it, the resulting food smells and tastes better to us. In the same way, we also *know* animals, - based on the benefits and risks that they pose to our humanly safety, comfort, and enjoyment. Largely, when the benefits outweigh the risks, we allow these animals to reside in ‘our’ cities, under certain conditions (see Fig 1.4. for a classification of our human perception of the animal, and the effect on the animals’ city-belonging.) Our human ideal measured against the physical reality is the basis for our perception, which informs the way in which we relate to these non-human animal species.

This stratification of non-human species has a direct effect on urban

NOT OF THE CITY

ANIMALS AS CRIMINALS

'THEY DON'T BELONG IN THE CITY; THEY ARE A DANGER TO OUR WELL-BEING.'

ANIMALS AS PESTS

'THEY DON'T BELONG IN THE CITY; THEY ARE UNHYGENIC.'

ANIMALS AS WILDERNESS

'THEY BELONG WHERE THEY ARE FOUND - IN THE EXOTIC, PRISTINE NATURE OUTSIDE OF THE CITY, NOT TO BE TOUCHED.'

ANIMALS AS WILDERNESS

'OUR CITY IS FOR THE RATIONAL, MORAL, AND INTELLIGENT. THERE'S NO PLACE IN SOCIETY FOR THE UNCIVILIZED.'

PARASITIC

USEFUL

DELICIOUS

SOOTHING

OBEDIENT

ANNOYING

UNSANITARY

DANGEROUS

AGGRESSIVE

ABUNDANT

MACHINE-LIKE

UNINTELLIGENT

UNTAMED

BRUTE

PURE

IMMACULATE

SERVANT

UNCULTURED

VULGAR

PRIMITIVE

PROFITABLE

AFFECTIONATE

CUTE

SLY

DIRTY

DIM

DULL

THICK

LABOURER

LOUD

UNRESTRAINED

INVASIVE

DISEASED

CHEAP

NUISANCE

REVERED

OF THE CITY**

**TERMS AND CONDITIONS APPLY.

ANIMALS AS TOOLS

'THEY CAN HAVE A PLACE IN THE CITY - AS LONG AS THEY WORK FOR US UNCONDITIONALLY.'

ANIMALS AS COMPANIONS

'THEY CAN HAVE A PLACE IN OUR HOMES - AS LONG AS THEY ARE OBEDIENT.'

Fig 1.4 Classification of human's perception of the animal, and the effect on animal city-belonging.

interspecies belonging, which has historically shifted with changing cultural, political, and technological contexts.

A BRIEF HISTORY OF URBAN ANIMAL GEOGRAPHIES

To begin, we must unravel our perception of the animal, and the subsequent effect that this has on animal spatial belonging. Our relationship with non-human animals have shifted dramatically throughout history, with direct implications on the built form of our shared environment. Historically, many cultures have lived in harmony with animal nature. Traditional Far-East, Indian, Greek, and many indigenous cultures have higher reverence to other life forms than Abrahamic religions, such as Islam, Judaism, and Christianity¹⁵. Western philosophy has largely focused on justifying human exceptionalism with rationalism as the defining difference, from the works of Plato, to Aquinas, Aristotle, Descarte, Kant, and beyond. In the Eurocentric sphere, this notion of human exceptionalism has fuelled the desire to dominate lands and their 'subhuman' peoples, animals and landscapes¹⁶. This historical perception of animal nature as resource and utilities serves as the backdrop for animal geographies moving into the recent centuries.

THE NEED FOR SAFETY:

Humans began occupying niches in the natural environment (and later building their own) as shelters for protection against the weather, wild beasts, and the otherwise unpredictable. This need stems from survival instincts, and is one of defence for physical wellbeing. Progressing into the middle ages, humans congregated in groups and formed cities, and surrounded themselves with walls. These caves, huts, and later city walls all created islands of civilization separate from the wilderness. Uncivilized, non-human animals belonged to the outside.

¹⁵ Elizabeth A. Lawrence, "Human Perceptions of Animals and Animal Awareness: The Cultural Dimension," *Advances in Animal Welfare Science* 1985, 1986, pp. 285-295, https://doi.org/10.1007/978-94-009-4247-9_16 and E. Szűcs et al., "Animal Welfare in Different Human Cultures, Traditions and Religious Faiths," *Asian-Australasian Journal of Animal Sciences* 25, no. 11 (2012): pp. 1499-1506, <https://doi.org/10.5713/ajas.2012.r.02>.

¹⁶ Hovorka succinctly describes the connection between the exploitative relations between humans and nature, and humans in power and marginalized humans, within the Western sphere. Both acts of stratification are grounded in nature-society binaries and subsequent ideas of species/racial superiority, with devastating consequences. See Alice J. Hovorka, "Animal Geographies I: Globalizing and Decolonizing," *Progress in Human Geography* 41, no. 3 (2016): pp. 382-394, <https://doi.org/10.1177/0309132516646291>.

ANIMALS AS HARNESSSED LABOURERS:

Dogs were domesticated by early hunter-gatherers as working companions. Since then, animals have been trained by humans for a variety of labour roles, including transportation, guarding, powering machinery, searching and retrieving, and so on¹⁷. Each particular animal had a place related to its use, mostly residing in the rural landscape: riding horses were kept in barn stables, mill-powering ox were kept in the industrial complex, and herding dogs were kept on pastoral farmlands.

THE SHIFT FROM WILD BEASTS TO COMMODIFIED FOOD SOURCE:

The move from hunting to animal agriculture occurred around 11,000 to 15,000 years ago, with the domestication of pigs, sheep, and cattle¹⁸. Intensive animal agriculture (factory farming) began in the late 19th into the early 20th century, parallel to innovations in mass production technologies and the discovery of animal antibiotics, vaccines, vitamins, and synthetic pesticides¹⁹. These kept animals are homed in peripheral rural landscapes, away from the urban human eye, but carved up for human consumption.

ANIMALS AS SPECTACLE/PERVERSE VIEW:

Based off the relation of animals as menacing savages and unpredictable beasts, the construction of architectures of spectacle allow human visitors to view these uncivilized animals in close proximity but in a protected manner. The architecture of animal spectacle celebrates the ability of humans to develop a culture and the technology to separate and protect them from the wild. The relationship becomes one of domination of untame animals to submit for human leisure. Examples included circuses (first recorded in Rome in 252 BCE) and venationes (wild animal fights and wild animal hunts in an arena, first recorded in Rome in 186 BCE)²⁰, cricket fighting (as popularized by Chinese Tang and Song Dynasty emperors in 600s-1200s

¹⁷ Jason Hribal (2003) "Animals are part of the working class": a challenge to labor history, *Labor History*, 44:4, 435-453, DOI: 10.1080/0023656032000170069

¹⁸ Greger Larson and Dorian Q. Fuller, "The Evolution of Animal Domestication," *Annual Review of Ecology, Evolution, and Systematics* 45, no. 1 (2014): pp. 115-136, <https://doi.org/10.1146/annurev-ecol-sys-110512-135813>

¹⁹ Ibid.

²⁰ Roland Auguet, "Cruelty and Civilization: The Roman Games," December 2012, <https://doi.org/>

PERCEPTION OF THE ANIMAL



WILD BEASTS



LABOURERS



SPECTACLE



COMMODIFIED
FOOD SOURCE



COMPANIONS

EFFECT ON BUILT FORM



WALLS
HUTS



MEWS
BARN
BARNHOUSES



VENATIONES
CIRCUSES
ZOOS
AQUARIA



FACTORY FARMS



DOG PARKS

LOCATION

AWAY FROM
HUMANS

FUNCTION-
CENTRIC

URBAN

PERIPHERAL / RURAL

URBAN

----- design against -----

----- design of -----

----- design for -----

Fig 1.5 Classification of the historic human perception of animals, and the effect on animal geography and animal urban belonging.

CE, and later adored by commoners as a lower-cost pastime)²¹, and subsequent derivatives such as modern horse racing starting in the early 19th century. Sport spectators are excited by the often rough and violent competitive exchange between the participants, yet feel neither guilt nor repugnance in watching the battles since they are not perceived as real. These subdued beasts are placed in cages or cells in the inner city, and are admitted only under strict restrictions and control.

ANIMALS AS COMPANIONS:

While the wolf was domesticated more than 10,000 years ago as human companions in hunting, guarding, and herding, the first pets (in the strict sense of a tamed animal kept for pleasure rather than labour purposes) were popularized among aristocrats in medieval Europe²². The lap dog was seen as a symbol of power and status. Pets at this time were seen as a link to the natural world, demonstrating that humans had control over the turbulence of nature. Companion animals resided alongside their masters in the inner city, were decorated and pampered and allowed a small degree of freedom within the human home, but were largely restricted by many rules and frequently punished for 'acting out' in 'uncivilized' ways. In present-day societies, pets (namely, dogs) are receiving more freedom and empathy; they are often perceived as extensions of the family, and are often amply provided for in terms of diet, healthcare, and emotional fulfilment due to a rising awareness of animal welfare in human city-dwellers. The relationship between pet owners and pets is one of adoration and empathy, and most acts of control by humans on the trained animals are ones of protection for the sake of the animal rather than strictly for human pleasure. The elevation of companion animal status and the recognition of the importance of their well-being is evident in the rise of designated dog parks in the city²³. Previously, domesticated animals were admitted into the city, so long as they were contained within cages or holding cell within what was clearly the

[org/10.4324/9780203389072](https://doi.org/10.4324/9780203389072))

21 Andrew Jacobs, "Chirps and Cheers: China's Crickets Clash," New York Times, November 5, 2011, <https://www.nytimes.com/2011/11/06/world/asia/chirps-and-cheers-chinas-crickets-clash-and-bets-are-made.html>

22 Juliet Clutton-Brock, "Origins of the dog: domestication and early history". In Serpell, James (ed.). *The domestic dog: its evolution, behaviour and interactions with people*. Cambridge: Cambridge University Press, 1995 pp. 10–11. ISBN 9780521425377.

23 Haya El Nasser, "Fastest-Growing Urban Parks Are for the Dogs," USA Today, November 8, 2011, <https://usatoday30.usatoday.com/news/nation/story/2011-12-07/dog-parks/51715340/1?csp=34news>)

human domestic realm. Now, there is the emergence of an awareness of the need for democratized animal spaces within the city.

ANIMALS AS VICTIMS TO BE PROTECTED:

The first half of the twentieth century's animal geographies focused on either Zoogeography, rooted in physical geography, zoology, and ecology, or a culturally oriented geography of animals, focused on animal domestication²⁴. By mid-century, these main frameworks were replaced by a new cultural geography, which focused on the connections between political-economic structures, poverty and marginalization, and environmental degradation in rural developing world settings, and political ecology, which focused on the social construction of urban landscapes²⁵. With the passage of the Endangered Species Act of 1973 in the US, the perspective became one of preservation. By the 1990s, the larger social context generated scores of radical new organizations advocating on behalf of animals (PETA, Greenpeace, etc).

The beginnings of critical animal geography arose out of the desire to investigate 'how notions of animality came to inform concepts of "human" identity'²⁶ - still operating within the anthropocentric realm. Animals became 'agents provocateurs' for thinking by, and about, ourselves²⁷. There was a shift to a cultural geography approach in which animals, as examples of 'nature', are defined and adapted as symbols of an 'otherness' within our own cultural spacings and placings²⁸. Due to the rapid urban expansion lead to the mixing of human and animal inhabitants within the city centre - this 'otherness' that exists 'out of place' in our urban habitat means we must now "redefine 'city', redefine 'wild' or accept such animals as citizens."²⁹ Critical social theorists began to draw attention to a wider range of subjects and subjectivities, leading to ideas of nature as agent.

24 Jennifer Wolch, "Anima Urbis," *Progress in Human Geography* 26, no. 6 (2002): , doi:10.1191/0309132502ph400oa.

25 Ibid.

26 Emel J, Wilbert C and Wolch J, "Animal geographies," *Society and Animals* 10, no. 4 (2002), 406–412.

27 Whatmore S, *Hybrid Geographies*, London: SAGE, 2002.

28 Buller, 2013.

29 Paraphrased from Richard Leakey's famous response to Jane Goodall's observations of chimpanzee tool use, as mentioned in Buller, 2013.

BEGINNINGS OF ANIMALS AS AGENTS:

In the recent two decades, animal geographies have become an increasingly present and innovative field with interdisciplinary connections. Stage setting publications emerged: *Environment and Planning D: Society and Space's* 'Bringin the Animals Back In' of 1995 criticized animals as mere signifiers of human endeavour and meaning, and 'Society and Animals' of 1998 explored the complex nexus of spatial relations between people and animals and acknowledged animal agency and the way that that agency is differentially constructed or understood in time and place. Progressive, compendiums addressing animal identity and subjectivity appeared, including *Animal Geographies: Place, Politics, and Identity in the Nature-Culture Borderlands* in 1998, *Animal Spaces*, *Beastly Places: New Geographies of Human-Animal Relations* in 2000, and *Placing Animals: An Introduction to the Geography of Human-Animal Relationships* in 2010. Two recent key texts serve to inform of the scope and history of this increasingly present field of study: Buller's *Animal Geographies I*, 2013³⁰ (which outlines the ontological and epistemological scope of animal geographies), and Hovorka's *Animal Geographies I: Globalization and Decolonization*, 2016 (which outlines an extensive list of contemporary animal geographers around the world)³¹.

The shedding of light on trans-species relationships has brought forth complex and highly fertile cross-disciplinary discourse, into literary studies, cultural theory, anthropology, biopolitics, politics, sociology, history, philosophy, the arts, the humanities, film studies and more; each field is enjoying their own successive 'animal turns'³². Through these interconnected works, 'new' animal geographies draws upon schools of thought include feminism, Marxism, and poststructuralism, challenging the idea of individual human will, the juxtaposition of the 'self and other', the notion of 'becoming animal'³³. These key conceptual referentials have been extended socio-sciences including postcolonialism, hybridity, actor networks, non-representational the-

30 See Henry Buller, "Animal Geographies I," *Progress in Human Geography* 38, no. 2 (2013): , doi:10.1177/0309132513479295.

31 See Alice J. Hovorka, "Animal Geographies I: Globalizing and Decolonizing," *Progress in Human Geography* 41, no. 3 (2017): , doi:10.1177/0309132516646291.

32 Wheeler W and Williams L, "The Animals Turn," *New Frontiers* no. 76 (2012), 5–7.

33 Buller, 2013.

ory, ethology, and posthumanism thought in general³⁴. Through all this, the presence and significance of contemporary animal geographies cannot be denied.

While historically, fields of study (such as animal sciences/animal agrarian studies, geo-biology, political ecology, environmental preservation, wilderness tourism, zoogeography³⁵) categorize animals as food, utility, resource, of natural preservation status, pest, or companion, few studies have examined animals in the gaps or overlaps between these categories, or as individuals with subjectivity and identity. In recent years, with the rise of critical animal geographies and authors such as Gillespie and Collard³⁶, and Carter and Charles³⁷, we are beginning to see more focus on challenging the universal system of value and power in the realm of animal geographies. However, there is still work to be done yet. Government policies and dominant societal values still do not address or support the subjectivities of their animal inhabitants. Predominant understandings and pedagogical approaches towards animal geographies is still one of clear-cut binaries of nature versus culture. For example, one Winter 2017 course syllabus from *Animal Geographies GEO 2156B*³⁸ at Western University, Canada, reveals the pervasive view that animals belong either as wildlife preserved, or helpers/companions domesticated. There is no mention of the intermediary urban 'wild'life.

34 Ibid.

35 Jennifer Wolch, "Anima Urbis," *Progress in Human Geography* 26, no. 6 (2002): , doi:10.1191/0309132502ph400aa.

36 See Rosemary-Claire Collard and Kathryn Gillespie, *Critical Animal Geographies* (Abingdon, Oxon: Routledge, 2015).

37 See Bob Carter, *Human and Other Animals: Critical Perspectives* (Basingstoke: Palgrave Macmillan, 2011).

38 See Dr. Tony Weis. "Animal Geographies." Syllabus, Western University, London, 2017.

THE MISSING GAP: URBAN BESTIARY / TOWARDS THE FUTURE: ANIMALS AS NEIGHBOURS?

“Due to the rapid urban expansion leading to the mixing of human and animal inhabitants within the city centre, this otherness that exists out of place in our urban habitat means we must now redefine ‘city’, redefine ‘wild’, or accept such animals as citizens.”

-- Henry Buller, 2013.

Our historical relationships with non-human animals are exclusively ones of human control. We’ve kept animals out, brought them in under our terms, capitalized on their work, and used them for our gains. Within all this there is one missing slice, where animals do not neatly conform to our human desires. These are the unexpected urban bestiary - animals we can neither exile nor domesticate, whether it be for cultural, spiritual, ecological, economic, or logistic reasons. These are the raccoons that Torontonians love to hate, the ferocious Canadian geese that terrorize students in Waterloo, the looming blankets of pigeons that threaten to engulf tourists in St. Mark’s Square in Venice, and the slithering gators emerging from ponds and sewers in Florida’s Gainesville. The unsettling reason for our dislike of these pests is that they infringe on the comfort and convenience of our urban lives. Despite a long history of physical inhabiting the city (and often times the space that predates the city), we deem these animals as ‘out of place’.

How can we mitigate this discrepancy between our expectations of the urban wildlife and how they occupy space in ‘our’ cities? Might it be through the reimagination of the city as not ‘ours’, but ‘shared’? How can we understand the animal inhabitation of our shared space better? What is architecture and urbanism’s ‘animal turn’?

It isn’t that thresholds and boundaries must be eliminated - in fact, this does the opposite of freeing the bounded actors. We need boundaries (protection, grounding, comfort) in order to feel free. Therefore, the exercise is to *carefully examine, evaluate, and re-construct* the boundaries and thresholds for each site context, so that the appropriate and desired *limits* and *relationships* can be fostered.

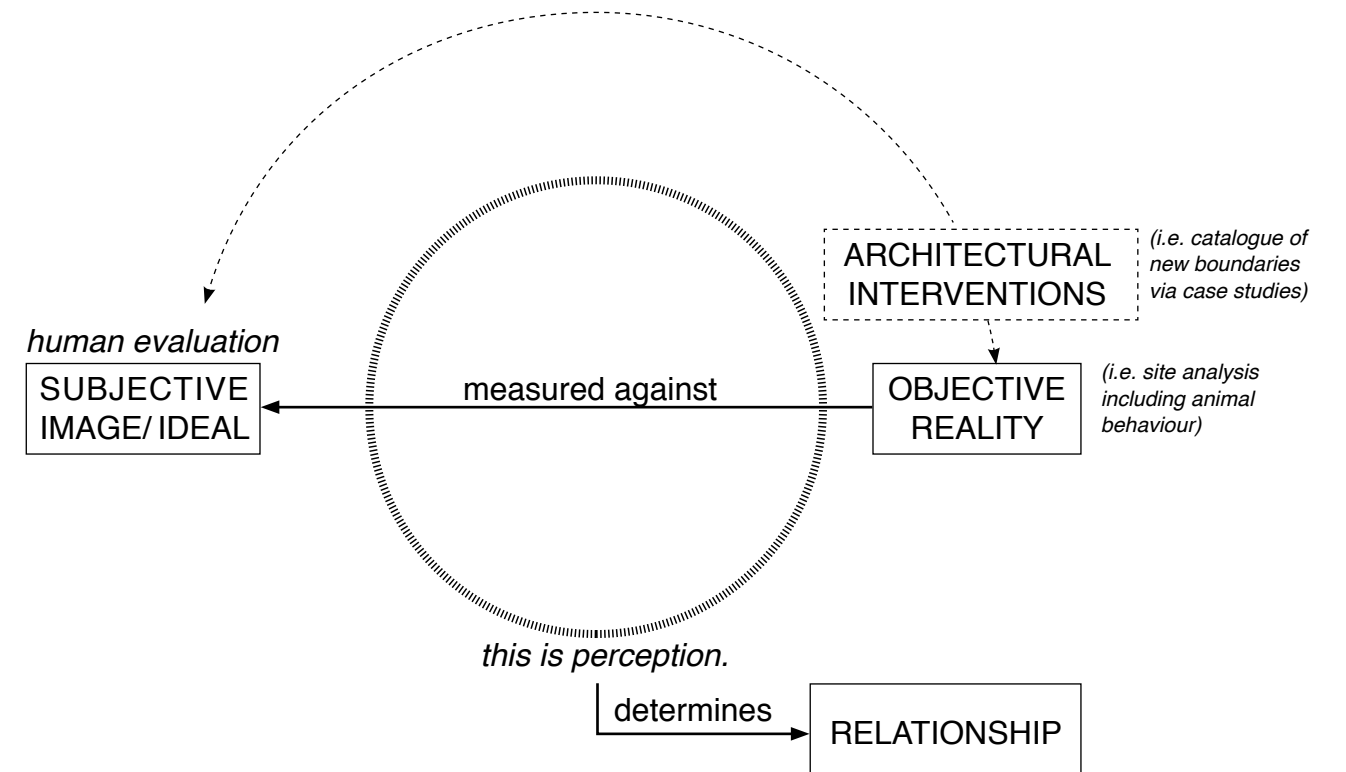


Fig 2.1 Flowchart describing the two ways in which architectural interventions can alter interspecies relationships (through a shift in the subjective image and the objective reality).

TERMS OF CONCERN:

bound·a·ry

/bound(ə)rē/

1. a **line** that marks the **limits** of an area; a **dividing** line.
2. a **limit** of a subject or **sphere of activity**.

scopes: physical, mental, emotional

types: rigid, spongy, soft, flexible

en·croach

/in'krōCH,en'krōCH/

1. intrude on (a **person's territory** or a thing considered to be a **right**).
2. advance gradually beyond **usual** or **acceptable** limits.

in·trude

/in'trōod/

1. put oneself **deliberately** into a place or situation where one is **unwelcome** or **uninvited**.
2. enter with **disruptive** or **adverse** effect.

neigh·bor

/nābər/

1. a **person** living near or next door to the speaker or **person** referred to.
2. a **person** or place in relation to others near or next to it.

PART TWO:

CASE STUDY ANALYSES & METHODOLOGY

ON INTERSPECIES BOUNDARIES

TERREFORM ONE, MONARCH SANCTUARY.

Keyword:

HIGHLIGHT/ SUPPORT



Fig 2.2 Monarch Sanctuary by Terreform ONE. Sectional axonometric showing double facade niches, central atrium, and green roof.

GOAL:

To offer mid-migration support biome for at-risk species and to design against urban extinction. To reconciliation between concrete urbanity and loss of wild habitat. To provide breeding spaces for boosting butterfly population. To provide urban space for life-feed ecological education for humans.

INNOVATION TO URBAN HUMAN-ANIMAL RELATIONSHIPS:

Offers reconciliation between concrete urbanity and the wild. Posits that human cities can also be 'wild' and the two are not mutually exclusive as they historically have been perceived to be.

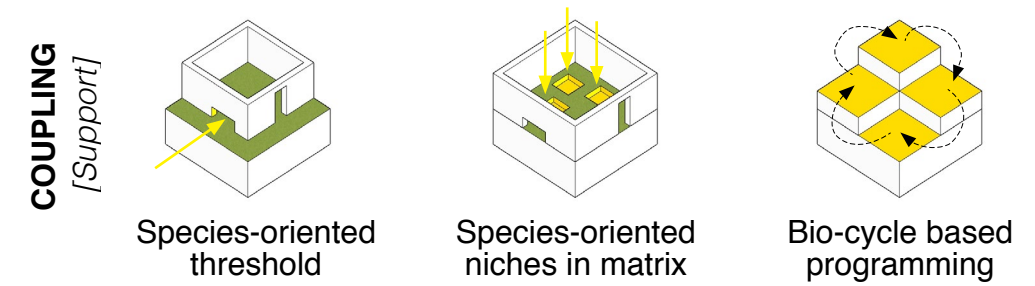


Fig 2.3 Distillation of architectural strategies used in project to inform human-animal relationship.



Fig 2.4 Monarch Sanctuary, double wall detail.

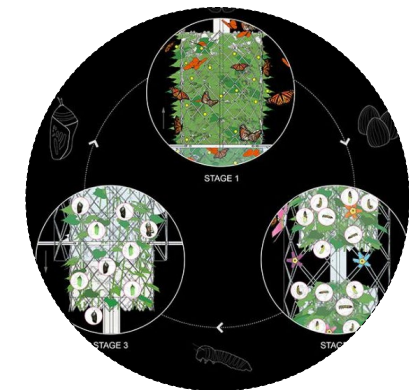


Fig 2.5 Butterfly life cycle diagram.

METHODS:

Circulation: allows freedom of butterfly movement into, out of, and within the building.

Programming: provides various levels of enclosure for different butterfly life cycle needs.

Facade/texture: Creates surface niches for vegetation and butterfly resting; double skin facade makes butterfly habitat and life cycles visible to pedestrians; fosters emotional investment and connection of humans towards monarch butterflies.

Keyword:

CONFRONT



Fig 2.6 Mosquito House, R&Sie. Visualisation of house interior and buzzing mosquitoes outside.

GOAL:

To intensify the interface of humans and pests (virus carriers), of fear and the desire for safety. To juxtapose the familiar (domesticity) with the disturbing for a heightened awareness. Instead of making the place of domesticity completely solid from the dangers of west nile, the architecture aims to force the inhabitants to confront the societal constructs and inner paranoia of the other. Inhabitants also witness all stages of the mosquito's life cycle and cannot hide from it. To provoke confrontational co-existence and challenge the boundary between acceptable and non-acceptable interspecies co-inhabitation.

INNOVATION TO URBAN HUMAN-ANIMAL RELATIONSHIPS:

Designed to face animality in the most vulnerable human sphere (the space of domesticity). Rather than hiding away the undesirable 'pest', the architecture fully embraces their presence.

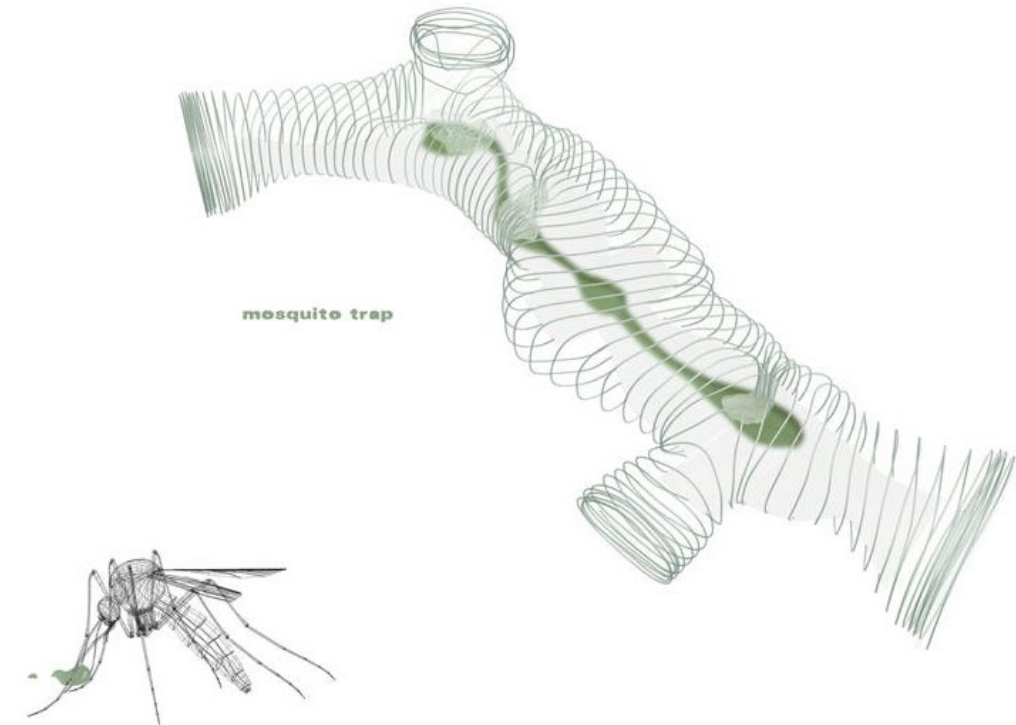


Fig 2.7 Mosquito House, R&Sie. Diagram of Klein bottle-like properties (mixed interiorities and exteriorities.)

METHODS:

Materiality/light/sound/view: Harnesses transparency and light. as elements of design. Completely transfers all perceptions of the insect to the inside through visual, audio, tactile cues and activates all the human inhabitants senses in relation to the animal outside.

Massing/Program/Circulation: Double Klein bottle design allows the human and the animal to dance around each other in 360 degrees, but never allows physical touch. This is as close to the animal as the human can get, while still being protected from the animal's harm.

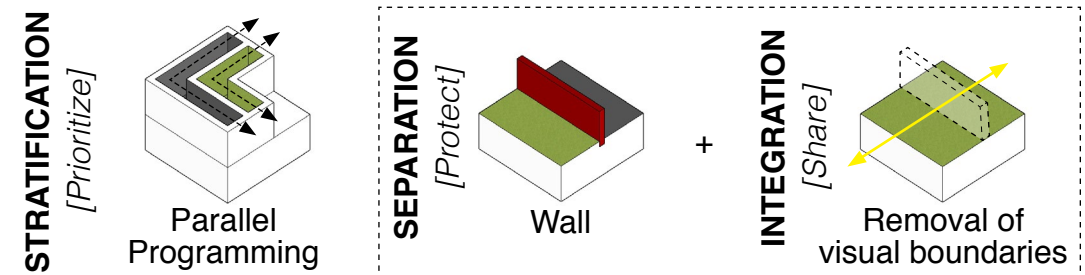


Fig 2.8 Distillation of architectural strategies used in project to inform human-animal relationship.

ANTS OF THE PRAIRIE, BAT TOWER/BAT CLOUD.

Keyword:

HIGHLIGHT

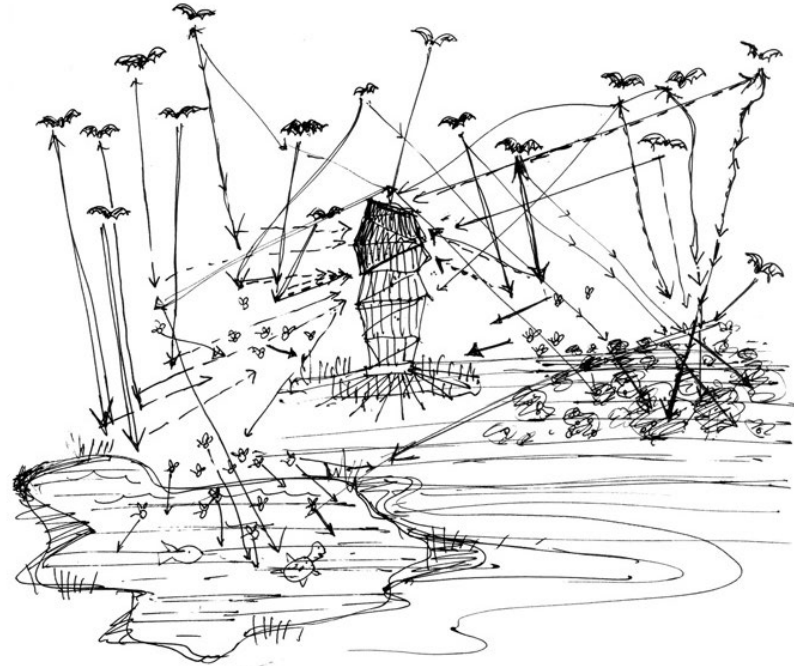


Fig 2.9 Bat Tower, Ants of the Prairie. Bio-relations sketch.

GOAL:

A rebranding and theoretical reframing exercise; it is not presumed that the bridge, or pond, or swamp, was built for the bats; the bats found the habitable space and are just doing their thing. To bring awareness to endangered species through various architectural prototypes located across the US. To turn ignorance driven fear into understanding about the role that bats play as critical pesticides and pollinators of the ecosystem

INNOVATION TO URBAN HUMAN-ANIMAL RELATIONSHIPS:

Confronts fear of pests by creating situations of wonder. Highlights bat habitats a places of recreation and leisure for humans, to provoke a form of architourism to offer education and engagement. Encourages bat species to become part of local cultural identity.

METHODS:

Surface/Materiality: Niches for bat use; provides variety for varied bat needs (landing pads, hanging grooves, roosting interiors).

Massing: Visible, dynamic object that takes focus, instead of discrete off-



Fig 2.10 Bat Cloud, Ants of the Prairie. Photograph of final installation.

the-shelf bat houses that blend in or are otherwise unremarkable.

Program/Materiality: Upper dwelling space with lower plant and soil filled area to catch guano for fertilization.

Orientation/location: Within existing bat-intensive habitats (both 'natural' and 'urban') such as adjacent to lakes or the undersides of bridges.

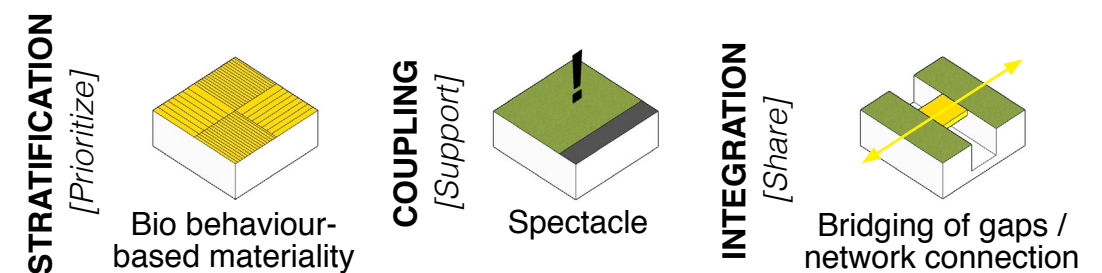


Fig 2.11 Distillation of architectural strategies used in project to inform human-animal relationship.

TEMPLE GRANDIN, SLAUGHTERHOUSE GANGWAY/SERPENTINE RAMP.

Keyword:

ANIMAL SENSORY



Fig 2.12 Serpentine Ramp



Fig 2.13 Serpentine Ramp, leading from cattle holding pen.

GOAL:

Rather than designing a decorative, human-viewed animal typology, Grandin designs for the animal sensory capacity. The project focuses on animal welfare (design for emotionally-well animals, rather than simply for the existence or physical survival of animals).

INNOVATION TO URBAN HUMAN-ANIMAL RELATIONSHIPS:

Designs for the animal sensory capacity, to reduce animal emotional stress.

METHODS:

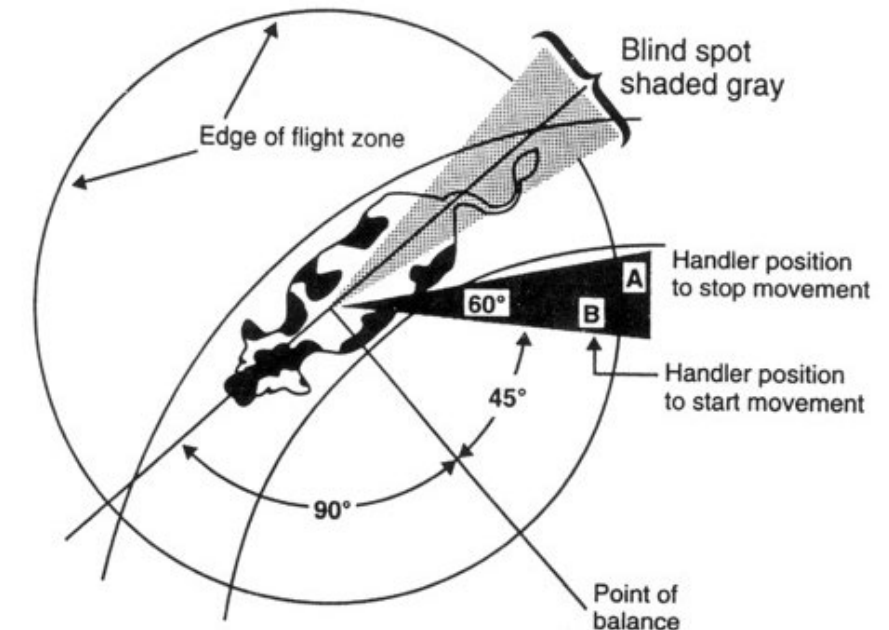


Fig 2.14 Diagram overlaying cattle perception and complimenting cattle handling procedures.

Circulation: Winding double-blinded gangway naturally leads animals without the need for prodding or noise cues; the lack of visual stimuli reduces animal fear and stress, and prevents panic and group clogging of the passage when there is hesitation. The winding path harnesses the natural flock movement of the animals, and makes the animals think that they are 'returning home'.

Layout/programming: Handler's walkway is located outside of the gangway to reduce animal fear while still allowing physical interaction from handler if necessary. Gangway walls are tall enough that animals cannot see outside, but handlers can see inside and supervise.

Materiality: Full-animal-height solid-coloured panels restrict visual distractions from entering the animals' perception.

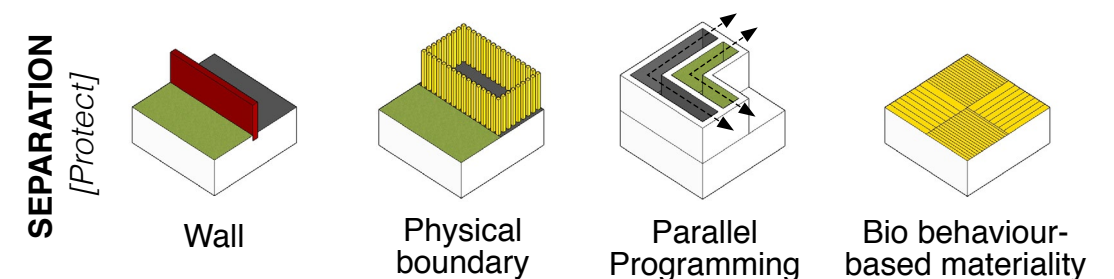


Fig 2.15 Distillation of architectural strategies used in project to inform human-animal relationship.

Keyword:

LIFE-CYCLE



Fig 2.16 Oyster-tecture sectional perspective visualisation.

GOAL:

To re-introduce diversity to New York's harbour marine ecology and re-introduce extirpated oyster presence caused by pollution and overharvesting. To increase harbourfront recreational potential and use oyster settlement to filter and improve water quality for ecosystem and human recreational use. To provide soft, flexible coastal mitigation; calming and reduction instead of hardscape to barricade water from island. The proposed living reef will be the symbiosis of human and oyster landscape; the success of human coastal settlement and sea life are directly dependent on each other

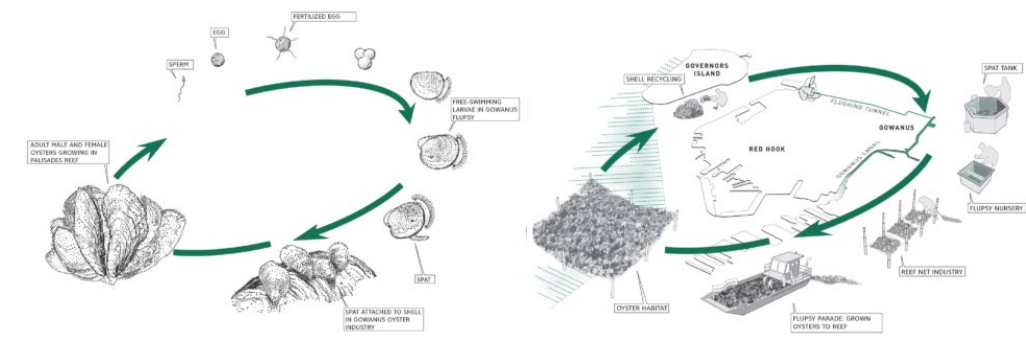


Fig 2.17 Diagram describing oyster biological life cycle and oyster-tecture reef life cycle.

INNOVATION TO URBAN HUMAN-ANIMAL RELATIONSHIPS:

The animal as a force in creating place and habitat (not just passive inhabitant, but an active participant). Design *with* the animal, rather than *for* the animal.

METHODS:

Harnessing biological cycle: Natural oyster life cycle as strategy (biotic filtration process)

Network/infrastructure: Suspended web substrate invites oyster colonies to inhabit instead of being buried in the sea bed silt; supports oysters' natural habitat needs.

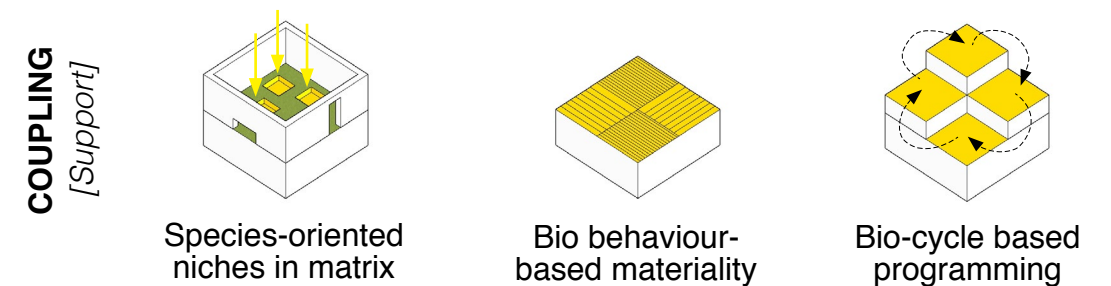


Fig 2.18 Distillation of architectural strategies used in project to inform human-animal relationship.

Keyword:

CONNECTION

GOAL:

Base off of the wildlife crossing typology, the project aim to reconcile interspecies freedom ('belonging') between human and wildlife mobility via landscape infrastructure. It provides easily deployable and adaptable as part of larger network of crossings.

INNOVATION TO URBAN HUMAN-ANIMAL RELATIONSHIPS:

Aims to patch disjointed habitats fractured by human development — ecological parameters as higher priority than social or cultural use of the landscape.

METHODS:

Technology/materiality/construction: Modular, flexible precast concrete prototype that is meant to be deployable at any appropriate location; minimal site disruption as no on-site concrete work is required; expandable and adaptable based on migration pressures through time/seasons.

Circulation/landscaping: Physically stitching together fragmented habitats via distilled, intensified local landscapes suited to existing species (scree, forest, shrub, meadow). Connects to important ecological nodes such as wetlands.

Form: To keep creatures from straying over the sides, an exposed hyper

vault borders each side of the landscape, creating a V-shaped concrete barrier eight feet deep with a 60-degree slope.

Materiality: Use of local vegetation; local infested pines are proposed to be felled and used to arrange into natural obstruction as well as habitat.

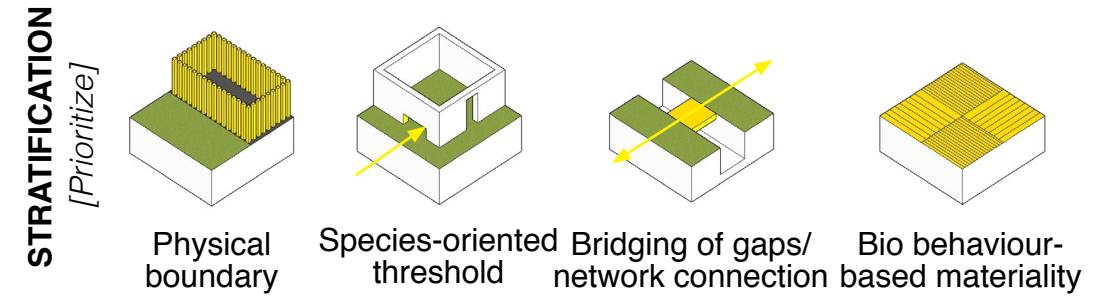


Fig 2.20 Distillation of architectural strategies used in project to inform human-animal relationship.

Complex Habitat Compression

Multiple habitat types from the surrounding landscape are selectively distilled and then condensed into a series of parallel bands that act as crossing corridors for various animal species.

The wide foraging bands provide an open field of view while narrow forest and shrub bands provide enclosed, covered corridors.

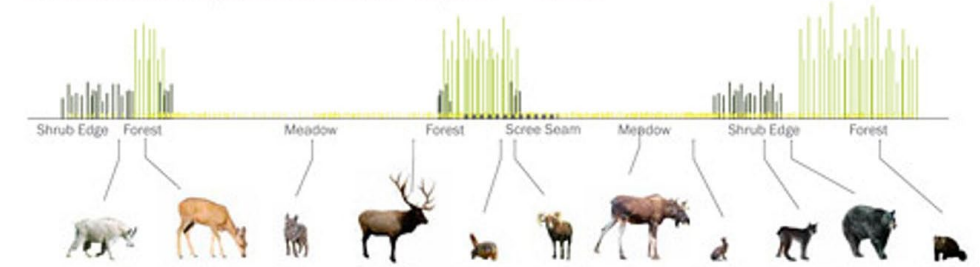
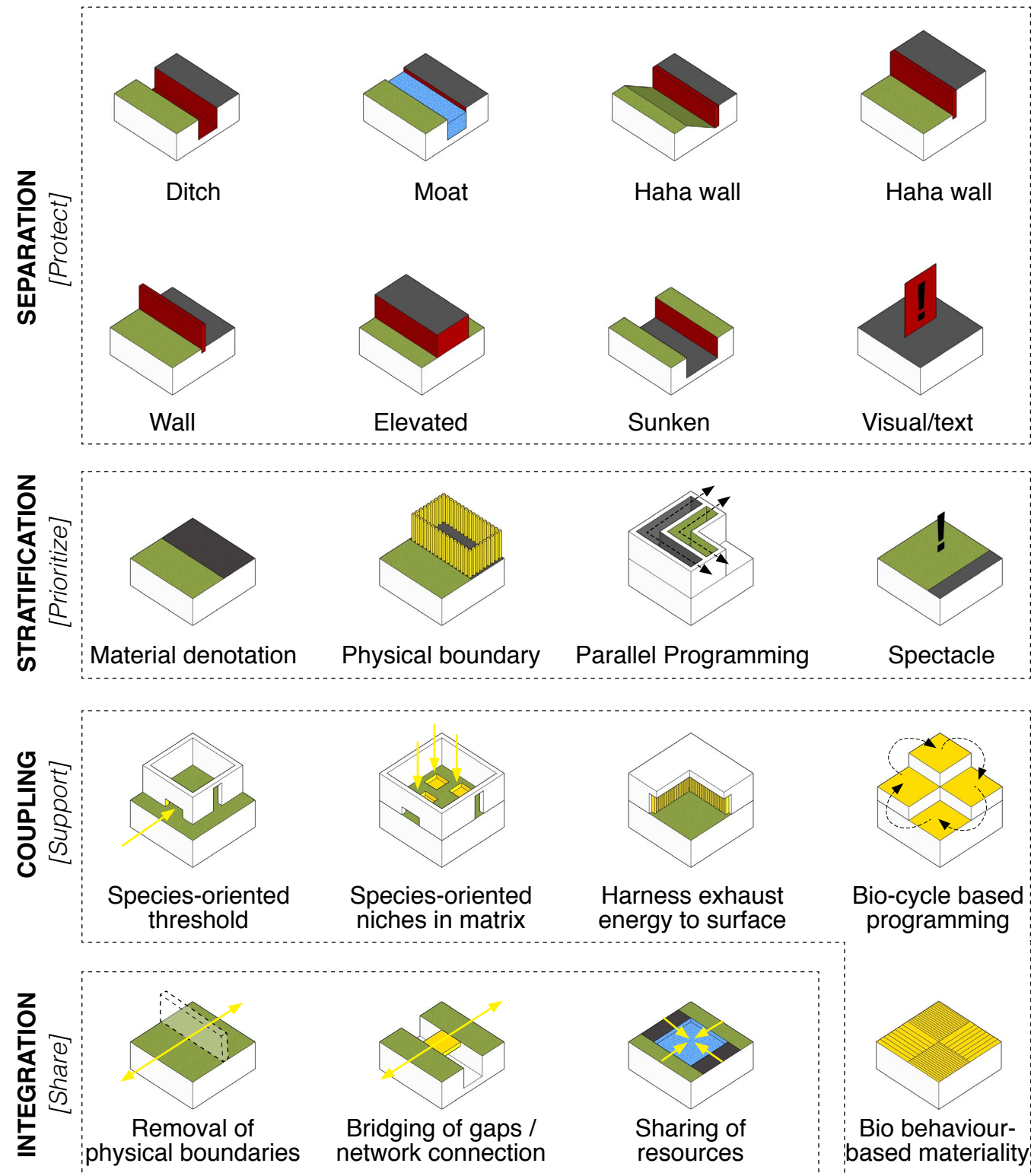


Fig 2.21 Diagram of local/migratory species and appropriate habitats to be incorporated into crossing zone.



Fig 2.19 Hyper-Nature crossing, proposed site section showing shared animal and human zones.

COMPILED ARCHITECTURAL METHODS OF REDEFINING INTERSPECIES BOUNDARIES:



CONCLUDING STRATEGIES/MISSED OPPORTUNITIES:

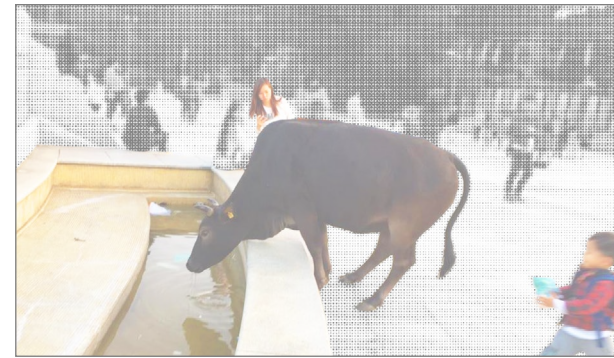
While the survey of existing designs working with interspecies co-inhabitation returns a range of projects, it is noticeable that most projects begin to unpack the frictions of interspecies relationships via sky- and water-based animals. We do share our cities with mosquitoes, butterflies, bats, and oysters — but we aren't truly forced to inhabit the same element as these non-terrestrial animals. In some sense these proposals still retain the earthed landscape as human territory. Furthermore, many of the surveyed projects explore our relationship with animals who are much smaller and weaker than us — making the interspecies boundaries of concern much more manageable from a human perspective.

What happens when we apply these design strategies to shared *land*, and with animals who are equally as strong as humans (if not stronger)?

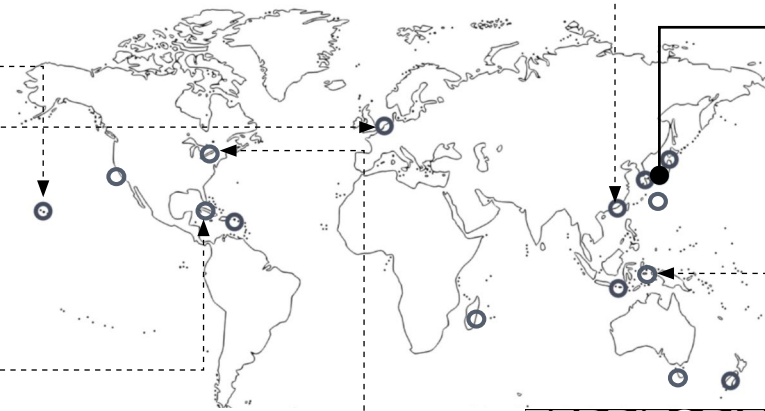
- Animal Space
- Human Space
- Intervention (Separating)
- Intervention (Integrating)

Fig 2.22 Compiled catalogue of architectural strategies to re-inform human-animal relationships.

PART THREE:
HUMANS, SIKA DEER, AND MIYAJIMA ISLAND



*Cervus nippon / Japanese Sika Deer
Miyajima Island, Japan*



TERRITORIES OF HUMAN-ANIMAL FRICTIONS

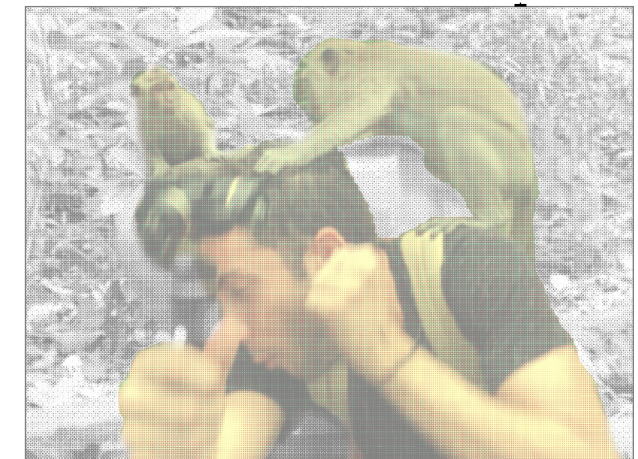


Fig 3.1 Map of territories of human-animal frictions, focusing on Sika deer breaking into local vending machines in Miyajima, Japan.



Japan

Hiroshima Bay - Miyajima Island

Miyajima Island - Developed Area

↑ Fig 3.2 Maps situating the urbanized area of Miyajima within
 N Miyajima island, Hiroshima Bay, and Japan.

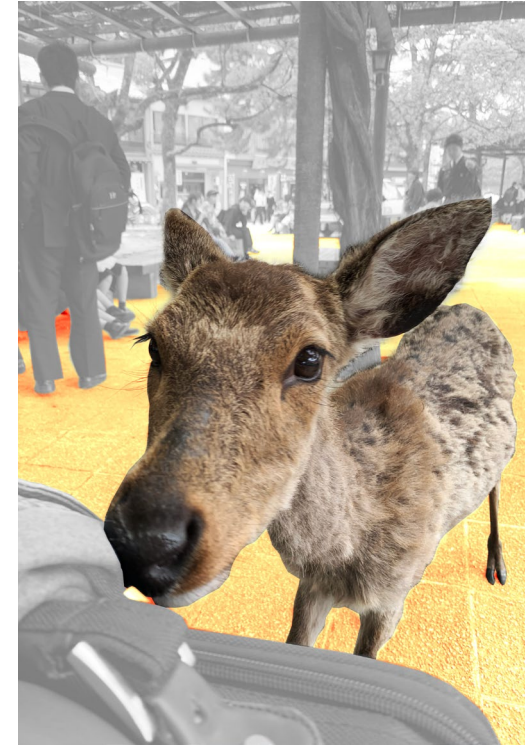
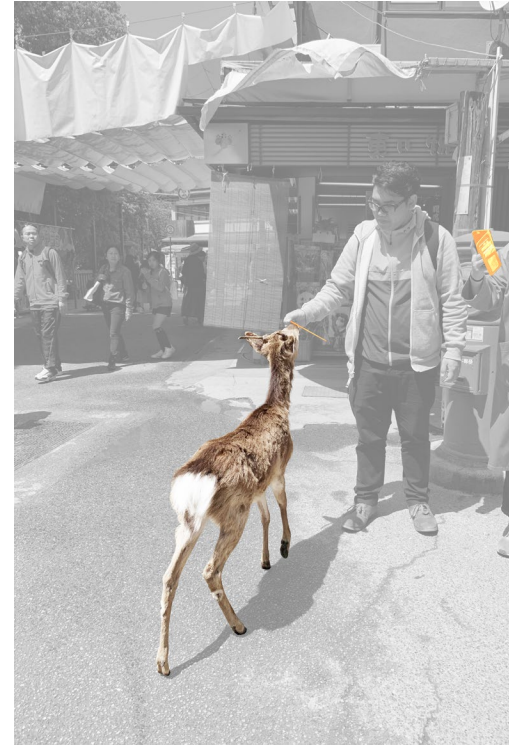


Fig 3.3 What elements in the urban landscape of Miyajima is setting up conflicts between the Sika deer and the people? What negative interactions are occurring between humans and deer presently?

SIKA DEER: PRESENT AND HISTORICAL CONTEXT

Miyajima island, located in the Hiroshima Bay of Japan, is a small island of only 30 square kilometers, most of which is rural apart from a dense, concentrated northwestern developed core. The island is home to roughly 2000 human residents and nearly the same counts of free-roaming, semi-wild and semi-tame Sika deer. Each year, over 4 million tourists visit the island for its world famous UNESCO designated great torii and other heritage and natural sites, heavily tipping both the local-foreign and animal-human balance of the island (see fig 3.4 for tourism high seasons).

The deer have been on the island long before humans, since the late pliocene, millions of years ago, and have roamed the island since. They have no natural predators on the island (see fig 3.7), and as such, continue to increase in population. In fact, Sika deer have a special status on the island - but it wasn't always this way. The deer have been worshipped due to shinto folklore¹, then hunted for sustenance during the war famine periods², then seen as a national cultural icon, labelled as a destructive nuisance in the age of agriculture³, and later celebrated as an abstracted mascot of local identity⁴ (see fig. 3.5). Throughout Miyajima history, humans and deer have held complex and dynamic relationships, as influenced by the physical and cultural contexts of the time.

Presently, frictions between the deer and humans on the island are rapidly intensifying, and boundaries between conflicting territories blurring, due to the increase in both deer population (through the lack of natural predators) and human traffic (through mass tourism). The observed range of human-deer interactions are categorized into the established long-term biological interactions (symbiotic relationships): mutualism, commensalism, neutralism, amensalism, competition, parasitism, and antagonism (see figure 3.6). Notably, negative interactions between humans and deer,

¹ "Messengers of the Gods – Deer of Nara," September 15, 2019 (Soramitsu Project, September 15, 2019).

² Dale R. McCullough, Seiki Takatsuki, and Kaji Kōichi, Sika Deer: Biology and Management of Native and Introduced Populations (Tokyo: Springer, 2009).

³ Seiki Takatsuki, "Effects of Sika Deer on Vegetation in Japan: A Review," Biological Conservation 142, no. 9 (2009): pp. 1922-1929, <https://doi.org/10.1016/j.biocon.2009.02.011>

⁴ "Deer & Raccoon Dogs," World Heritage Miyajima Island (Miyajima Tourist Association, n.d.), http://www.miyajima.or.jp/english/nature/nature_animal.html.

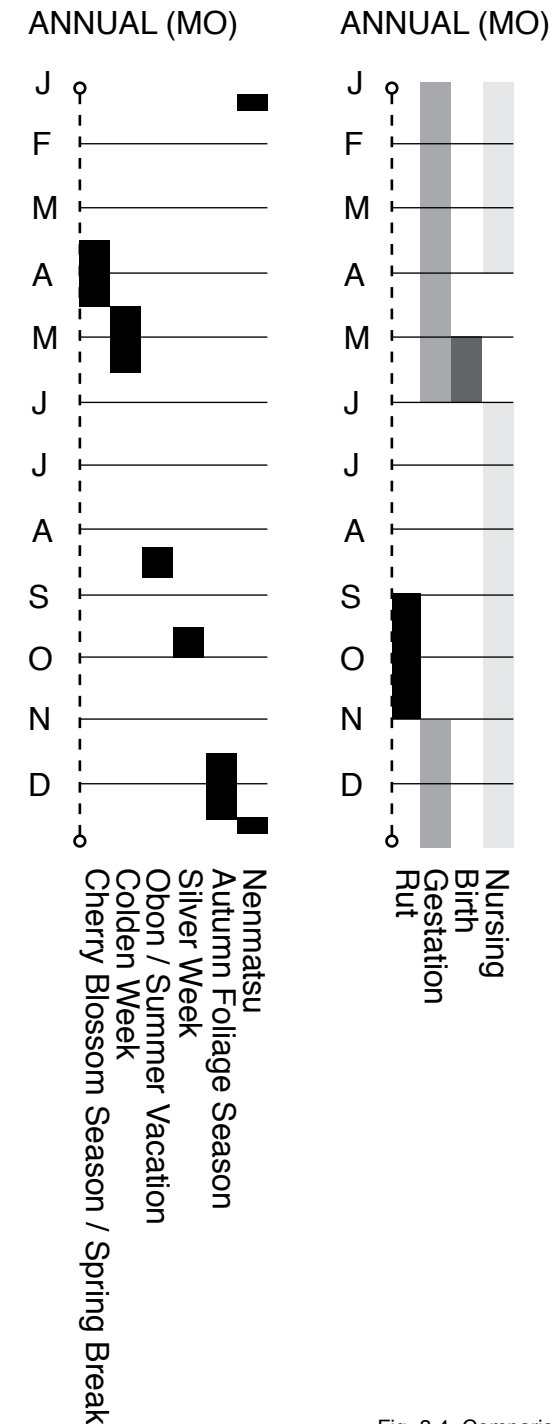


Fig 3.4 Comparison of annual peak tourism/human populations dates (national holidays and festivals) and Sika annual life cycle. Dates overlap significantly during times of Sika vulnerability (early and late pregnancy, birth, and rut seasons).

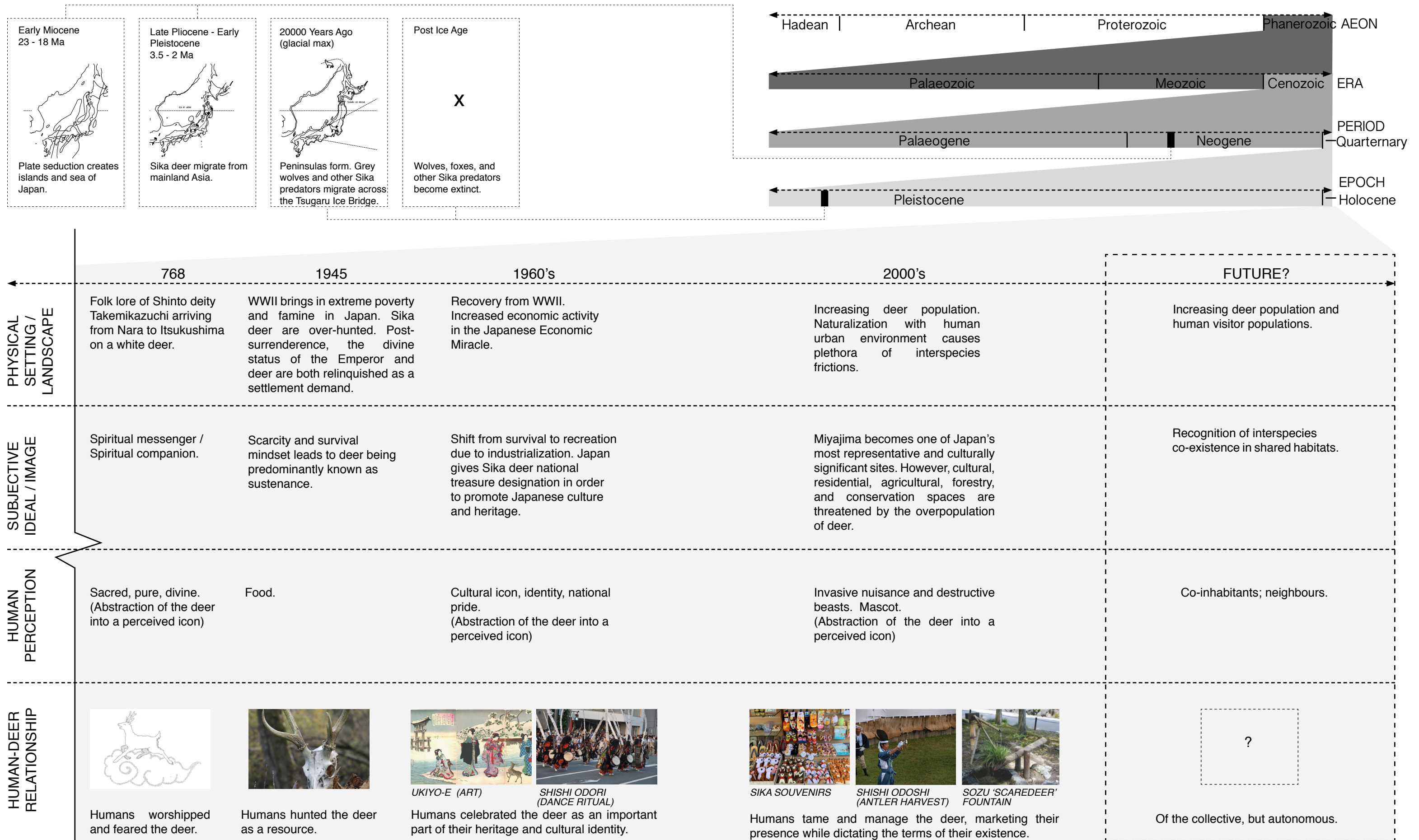


Fig 3.5 Historical shifts in the human-deer relationship on Miyajima island, as influenced by the physical setting and subjective ideal of the time, and the human perception of the deer as a result.



Fig 3.6 Taxonomy of existing human-deer interactions on Miyajima island, based on the seven established biological symbiotic relationship categories.

STUDY: SIKA DEER IN MIYAJIMA ECOSYSTEM

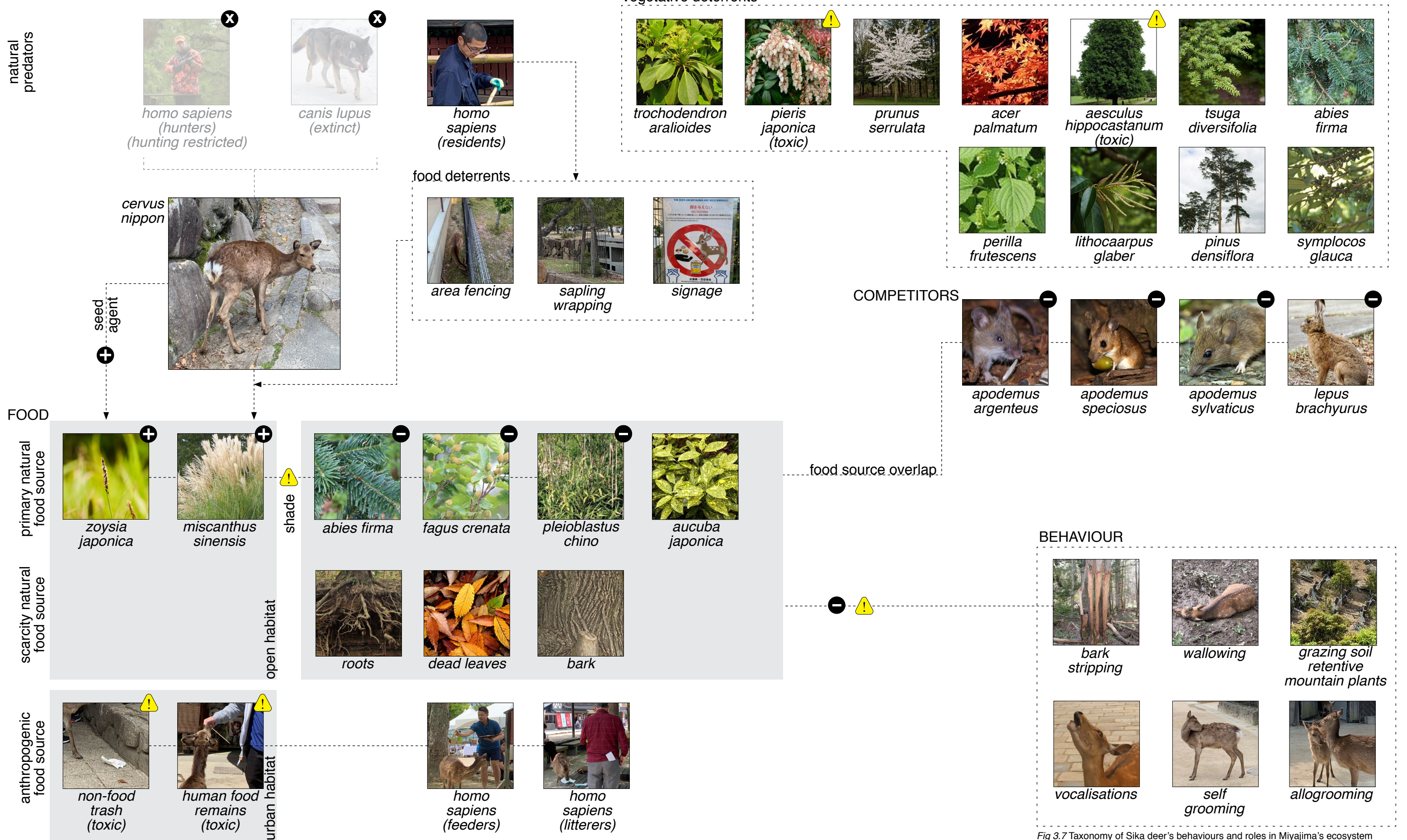


Fig 3.7 Taxonomy of Sika deer's behaviours and roles in Miyajima's ecosystem

particularly those that are initiated by human tourists, outweigh the neutral or beneficial human-deer interactions that take place on the island. Much of the conflicts can be attributed to improper behaviours and interactions initiated by (human) visitors to the island - such as engaging these semi-wild deer as if they were docile pets - as well as the deer's increasing dependency on inappropriate anthropogenic food sources such as leftover street food and litter. These conflicts manifest in the declining health of the deer, damaged property, stolen goods, and injuries to humans by deer aggression. The rapid turnover of visitors and the perception distortion created by social media in the age of ecotourism has led to the ignorance and misinterpretation of the deer's needs, preferences, and agency. There is a clear lack of understanding about the fact that the Sika deer have been 'natural' inhabitants of the sacred island for thousands of years - predating human settlers and pilgrims - and their position as spiritual messengers throughout Shinto history.

It is important and time-sensitive then, that we mitigate the crisis of human-deer frictions, not only for practical and ecological reasons, but also for cultural ones. We need new ways of thinking about our relationship to animals, and the relationships of animals to our mutual homes and landscape. The exploration portion of this thesis asks: rather than pets, pests, beasts, or spirits - could we recognize the Sika deer as neighbours and co-inhabitants? How might we achieve this new definition of the Miyajima Sika deer, through architectural and landscape interventions? Looking forward to the future, how can we shift into viewing these animals as neighbours? what implications might this vision have on the physical urban landscape?

EXISTING HUMAN-DEER OUTLOOKS AND MANAGEMENT STRATEGIES

Elements of design pertaining to the deer in the landscape. There were physical boundaries, physical networks, information networks, and community networks (see fig. 3.8). However, the primary strategy was one of 'keeping the deer out of the human realm'. While there was a level of respect and understanding towards the deer, from the management strategies, it was abundantly clear that the deer were simply allowed to exist within the

human-centric matrix. Clearly, the island is designed for and experienced only through the human eyes, and denies deer as true co-inhabitants. The strategies were ones of restriction and repair, rather than opportunity.

The human-deer relationship should be re-examined; different types of relationships can be explored through architectural and landscape interventions. Furthermore, relationships (human-deer, human-deer-site) need not be static; they should be flexible and adaptive to seasonal cycles are needed.

How could these boundaries could be shifted and re-imagined more in favour of the deer's experience and occupation of the island? In other words, what can be done to allow the deer's presence and existence to read more clearly through the urban landscape of the island?

PROPOSED DESIGN DIRECTIVE

In the end, human inhabitants and human visitors of Miyajima will have a better understanding of the Sika deer as co-inhabitants, and the Sika deer will have an urban island habitat that is more supportive of their spatial and behavioural needs.

The method of resolution to the interspecies conflict will not be to remove or control the deer, but rather to shift away from dangerously misguided human behaviours through landscape moves and architectural programming. Rather than conforming to solely human standards - the island will be a physical and architectural celebration of (bio)diversity and interspecies kinship.

The design should provide for fluctuating spatial and temporal need, so that a limited space (the island) can adapt to be more supportive for all species during their particular times of need. The design will enhance and intensify interfaces of interaction - in a flexible, cyclical way (particular spaces adapting to more 'deeriness' when deer need it, and more 'humanness' when they don't). The shared island becomes stable but not static.

ORGANIZED / POLICY DRIVEN

GUERRILLA

INCLUSION

EXCLUSION

SPATIAL SECURITY



Illness / Injury Rehabilitation Area (safe space for vulnerable populations)

NETWORKS / INFRASTRUCTURE (CONCEPTUAL BOUNDARY)

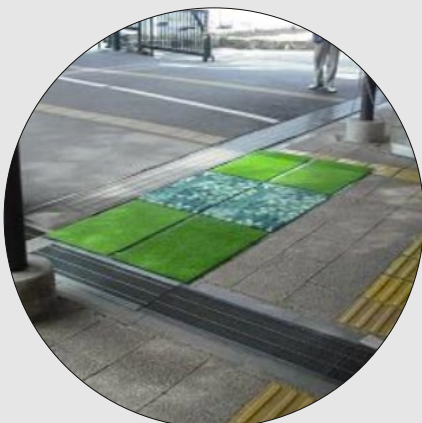


Concealed Trash Chutes (reduction of accidental waste ingestion)

COMMUNITY EVENTS



Beach Clean-up (reduction of plastic / waste ingestion)



Transfer Prevention Mats (disease transfer prevention)



Erosion Deterrent (landscape protection)

CONSERVATION PROTECTION (PHYSICAL BOUNDARY)



EQUIPMENT / SERVICES PROTECTION (PHYSICAL BOUNDARY)



Fences, Caging (restriction of access to interior, restriction of physical reach)

PROGRAM / SPACE PROTECTION (PHYSICAL BOUNDARY)



Fences, Walls (restriction of access to interior)

GARDEN PROTECTION (PHYSICAL BOUNDARY)



Fences, Caging (restriction of access to interior, restriction of physical reach)



Signage, No Feed Policy (population suppression through starvation)

Fig 3.8 Inventory of current human-deer outlooks and management strategies

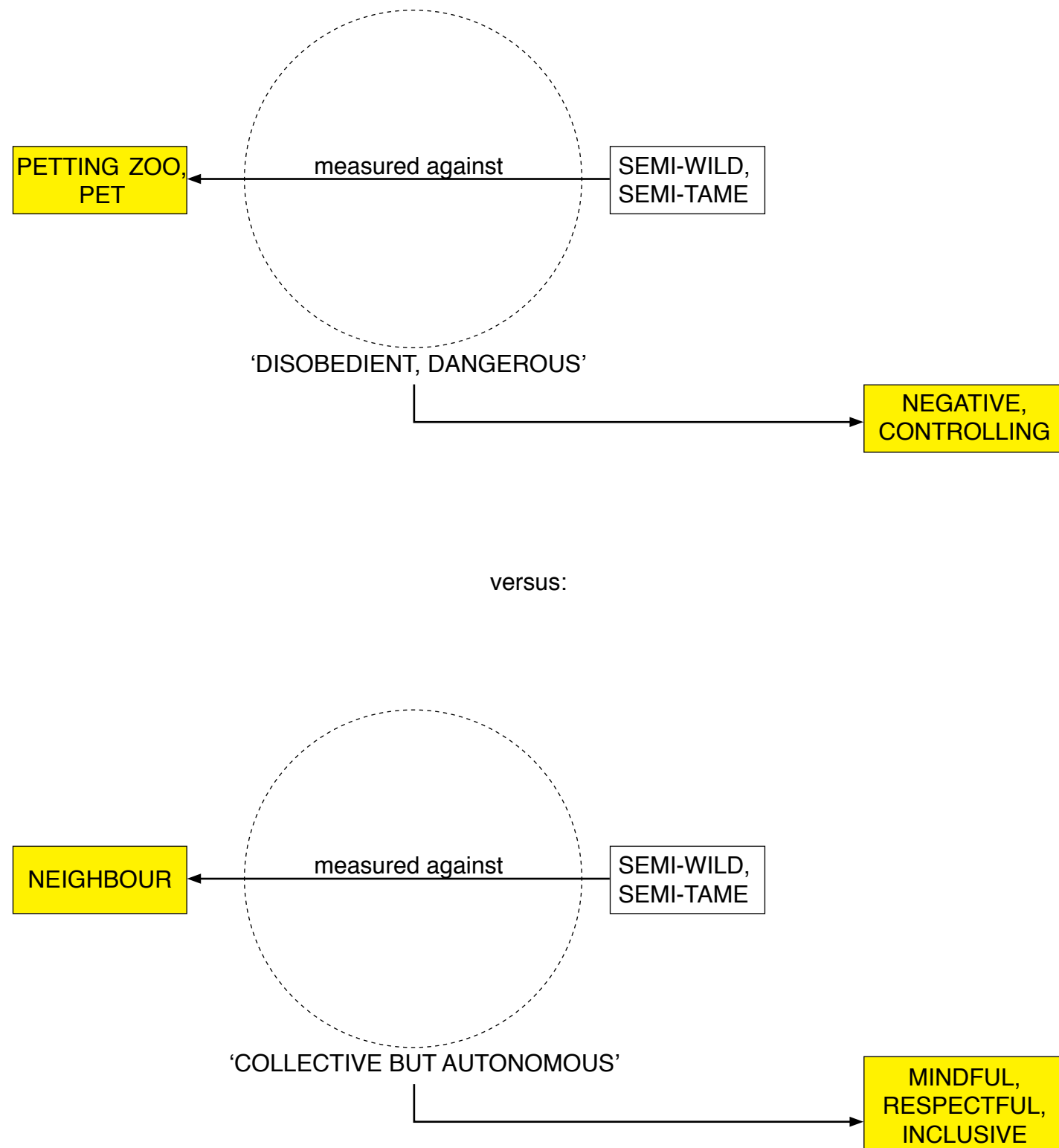


Fig 3.9 A comparison of two different frameworks of Sika perception by humans, demonstrating the possible difference in resulting interspecies relationships.

First, it is critical to identify pain points and periods of vulnerability/crisis in the deer's daily and seasonal life cycle. Then, these stress points can be coupled with appropriate sites on the island in order to provide support during these vulnerable times. The interventions should - in addition to physically supporting the deer times of need - make the deer's needs and rituals clear to the human guests, in order to bridge the gap in knowledge about these inhabitants of the island. It is also important to think across scales, from the bodily and furniture interface to territorial networks, in order to test design methods appropriate to each particular site of human-deer interaction.

TESTING SITES OF OPPORTUNITY

There is not one correct solution for the type of relationship that human territories should have to deer territories, and not one correct solution for the type of relationship of interspecies territories should have to the built city or the landscape. This thesis explores a range of locations and site in Miyajima, each with its specific existing contexts and conditions. For each instance, a different approach is used, encouraging a different type of human-deer relationship that is appropriate to the context, and flexible to the shifting temporal cycles. A variety of sites, each with its unique existing program, context, and ratio of human-to-deer occupation, are selected as sites of exploration. Interventions across scales from bodily/furniture interface to territorial networks are applied as appropriate in order to encourage a different type of human-deer relationships at the site, and to reveal the significance of the deer-site relationship in through the architectural and landscape moves. I began to examine the key spatial and programmatic typologies of the island, and tried to see each place from both the human and deer perspective. These typologies include: the port, the visitor centre, the crossing, the guesthouse, the public bath house, the cafe/brewery, the shrine/temple, the teahouse, the campground, the beach, the mountain hiking path, and the mountain peak observatory. From here, I identified the existing human use, existing deer use, site friction, site opportunities, and possible interventions, for each typology. From these, I chose a sample of diverse typologies from which I could see the most opportunity for exploration. The set is chosen for its variety in scale and perception of 'deerness' (from the space of the domestic human residence, to the camping nature parks surrounded by forest canopies. The interventions aim to turn each site on its head, and change the level of 'deerness' and 'humanness' in order to change the way in which we occupy and experience the island. These were the port, the crossing, the guesthouse, and the campgrounds.

STUDY: IDENTIFYING TYPOLOGIES OF CONFLICTING TERRITORIES IN MIYAJIMA

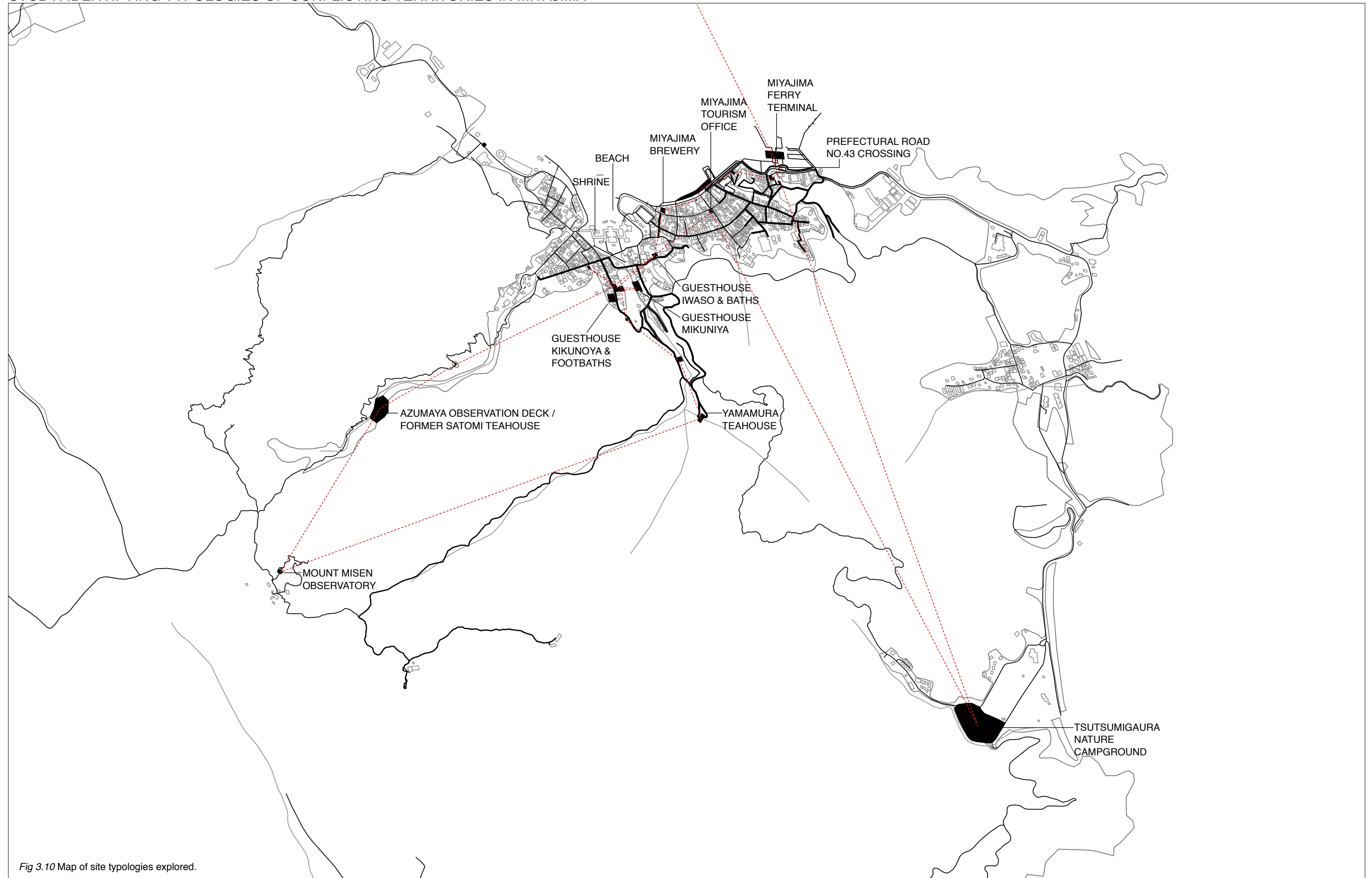


Fig 3.10 Map of site typologies explored.



PORT



**VISITOR
CENTRE**



**GUEST-
HOUSE**



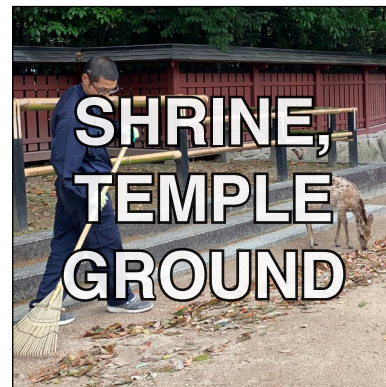
**PUBLIC
BATH
HOUSE**



CROSSING



**CAFE /
BREWERY**



**SHRINE,
TEMPLE
GROUND**



TEAHOUSE



**CAMP-
GROUND**



**BEACH,
BAY**



**MOUNTAIN
HIKE PATH**



**MOUNTAIN
TOP
OBSER-
VATORY**

LANDSCAPE:
HEAVY HUMAN PRESENCE

DEVELOPMENT
DENSITY

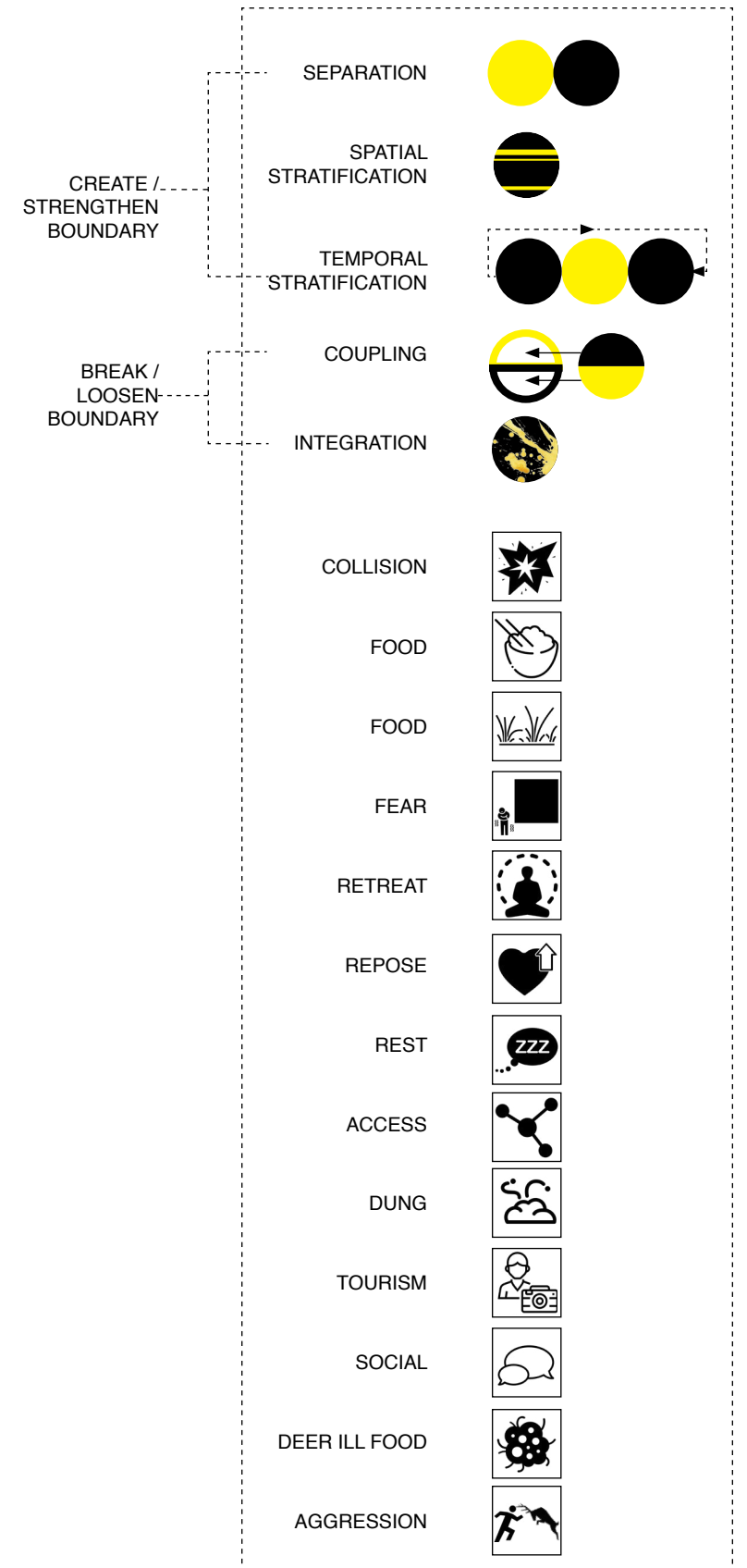
LANDSCAPE:
LIGHT HUMAN PRESENCE

Fig 3.11 Catalogue of site typologies explored.

SITE TYPOLOGIES AND STRATEGIES ABACUS DIAGRAM

	SITE TYPOLOGY	EXISTING HUMAN USE	EXISTING DEER USE	SITE FRICTIONS	SITE OPPORTUNITIES	PROPOSED INTERVENTIONS
GUESTHOUSE				-	1. Under-utilized green space 2. Unharness exhaust energy	1. open wall to deer 2. Waterworks/fake forest for rut habitat 3. harness exhaust heat for hind + fawn season
BATHHOUSE			-	-	1. Enhance ritual, therapy / connection by opening to deer presence (?) 2. Heat to support deer in winter, water to support deer in winter	1. separate but entangled pools for deer, especially during winter
PORT					1. gateway/filter-tecture; cleanse and re-frame mindset of visitors	1. return ground-plane to deer 2. sunken promenade 3. visitor interpretation centre.
TEAHOUSE					?	?
RESTAURANT					?	?
BEACH					?	?
CAMPGROUNDS					?	1. elevate campers from ground 2. protect campers and belongings with pods; all other space is deer's
ROAD/CROSSING					designate passageway as deer/ pedestrian corridor	1. emphasize pedestrian and deer access across traffic island through ground treatment 2. strengthen edges with double deer wall
MOUNTAIN/TRAIL				?	?	1. enhance trek with callouts of deer traces in 'natural' habitat?
SHRINE/TEMPLE			-	?	?	?

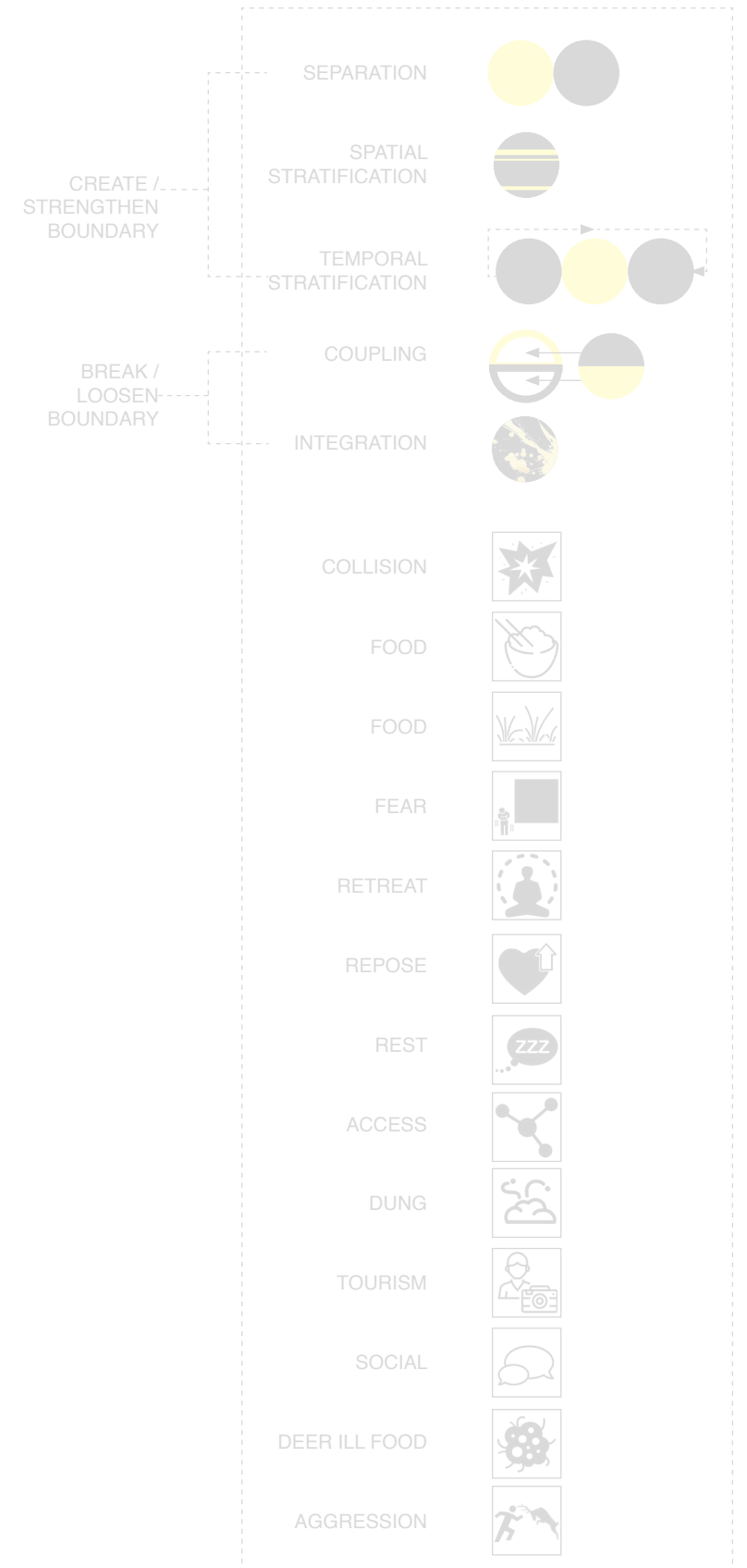
Fig 3.12 Abacus diagram of site typologies explored and their existing uses, site frictions, site opportunities, and proposed interventions.



SITE TYPOLOGIES AND STRATEGIES ABACUS DIAGRAM

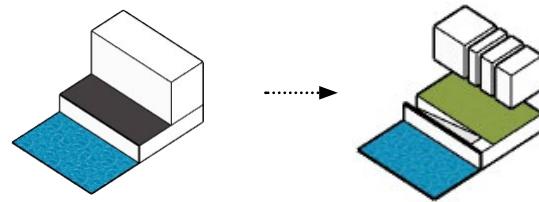
	SITE TYPOLOGY	EXISTING HUMAN USE	EXISTING DEER USE	SITE FRICTIONS	INTERVENTION TYPE/ BOUNDARY CONDITION	MATERIAL PALETTE	POST-INTERVENTION (?)
GUESTHOUSE				-			
BATHHOUSE			-	-			-
PORT							
TEAHOUSE							-
RESTAURANT							?
BEACH					?		
CAMPGROUNDS							
ROAD/CROSSING							
MOUNTAIN/TRAIL				?	?		?
SHRINE/TEMPLE			-	?	?		?

Fig 3.13 Selection of a set of 4 typologies for further exploration, allowing for a high degree of diversity within possible solutions.



PART FOUR:

MIYAJIMA AS THE PROTOTYPE ZOOPOLIS



PORT / VISITOR CENTRE COMPLEX.



34°18'07.5"N 132°19'20.1"E

Fig 4.1 Parti diagram for proposed transformation.

CONTEXT:

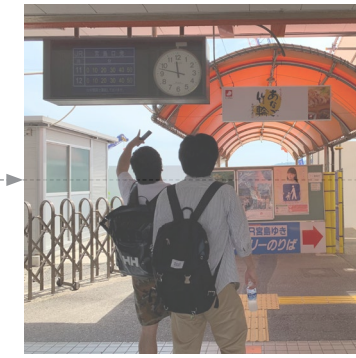
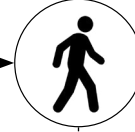
Miyajima Island, with its complex topography and lack of air and land connections, is only accessible via ferry from its single port. In addition to national parks, sacred mountain outlooks, and a well-preserved Edo-period urban centre, Miyajima is also home to the UNESCO designated Itsukushima Shrine and Floating Gate. Because of these natural, spiritual, and cultural features, and despite having only 2000 inhabitants, the island receives 4 million visitors annually. However, being a slower-paced town compared to surrounding megacities like Tokyo, Kyoto, or Osaka, Miyajima is often suggested as a one-day or even half-day detour from Hiroshima in most travel itineraries¹, and has a high tourist turnover rate, as it generally does not receive repeat visitors.

OBSERVATIONS:

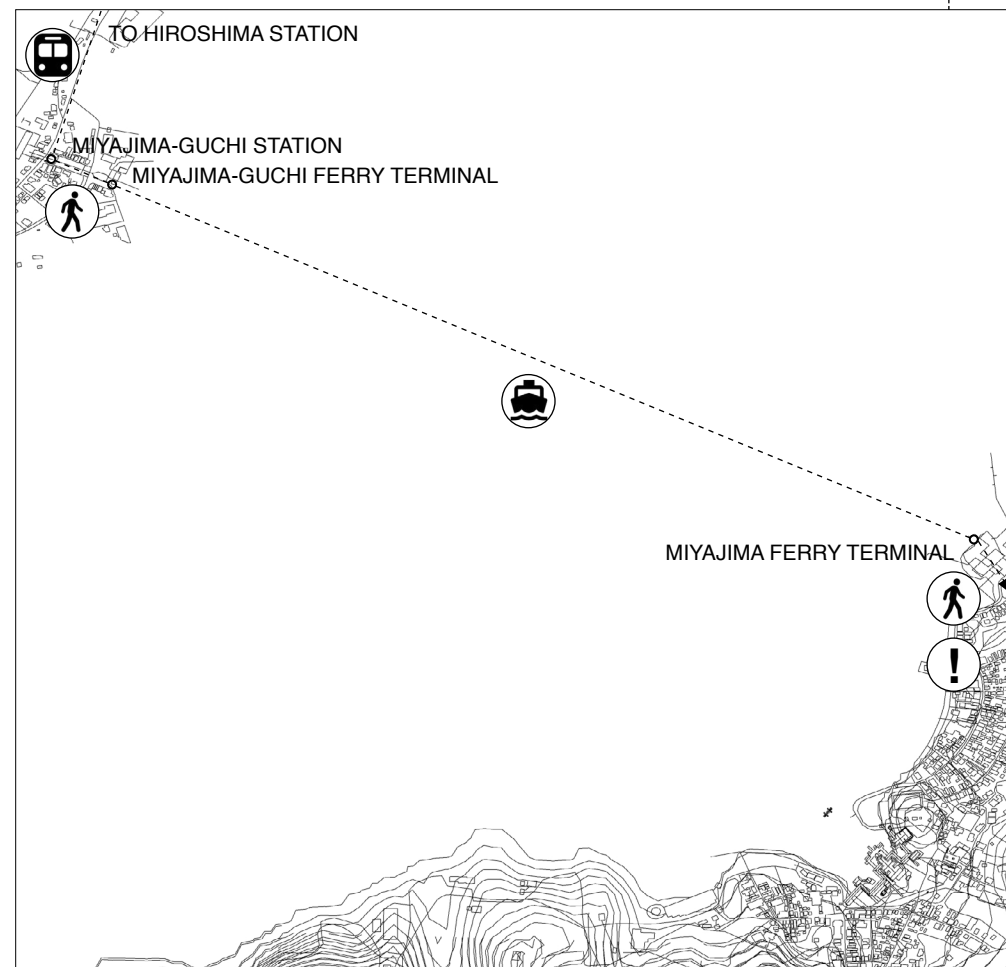
During my own visit to Miyajima, as a first-time tourist like many amongst myself, it was apparent to me that the journey to the island was one that excluded the knowledge of the deer inhabitants. Despite the large presence of the free-roaming sika deer on the island, there is very little that alluded to the deer population enroute to the island. For the most part, while the deer has significance in the cultural identity of the island, this significance has mostly been left on the island. The presence of the deer does not come into the conscious awareness of the visitors until they have physically passed the ferry terminal arrival gates and are spat into the open plaza where gangs of deer wait to ambush visitors and beg for food (see fig. 4.2 and fig. 4.3, 4.4, 4.5, 4.6). The path of access is blunt and direct; most visitors, as observed, are taken by surprise, and proceed to interact with the deer in ways that (unbeknownst to the visitors) provoke conflict. In the far corner of the ferry terminal hall, a tiny information kiosk displays an A4-size warning against the feeding of the local deer. Its discreteness, low-visibility, and poor location makes the alert nearly invisible to all who are not explicitly looking for it. Visitors are not aware of the deer's behaviours, biophysical needs, or digestive cycles, and treat the deer as tamed, domesticated animals (which they are not); the result is aggression from the deer and injuries to the

¹ Miyajima's official website even promotes a one-day course. See "1 Day Course: Visit the Main Spots in Miyajima," MIYAJIMA OFFICIAL TOURISM WEBSITE, n.d., <http://visit-miyajima-japan.com/en/idees-sejours/formule-1-journee.html>

Fig 4.2 Documentation of human experience and perception during journey to Miyajima.



EXISTING SITE - JOURNEY



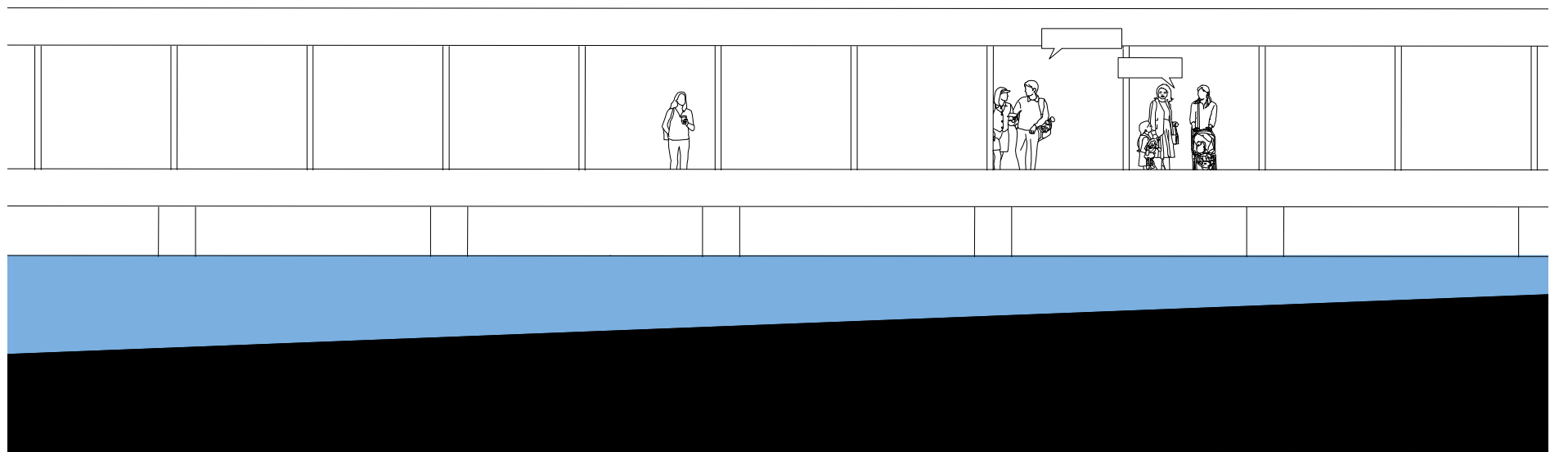


Fig 4.3 Existing port analysis section (part one).

VISUAL OBSTRUCTION

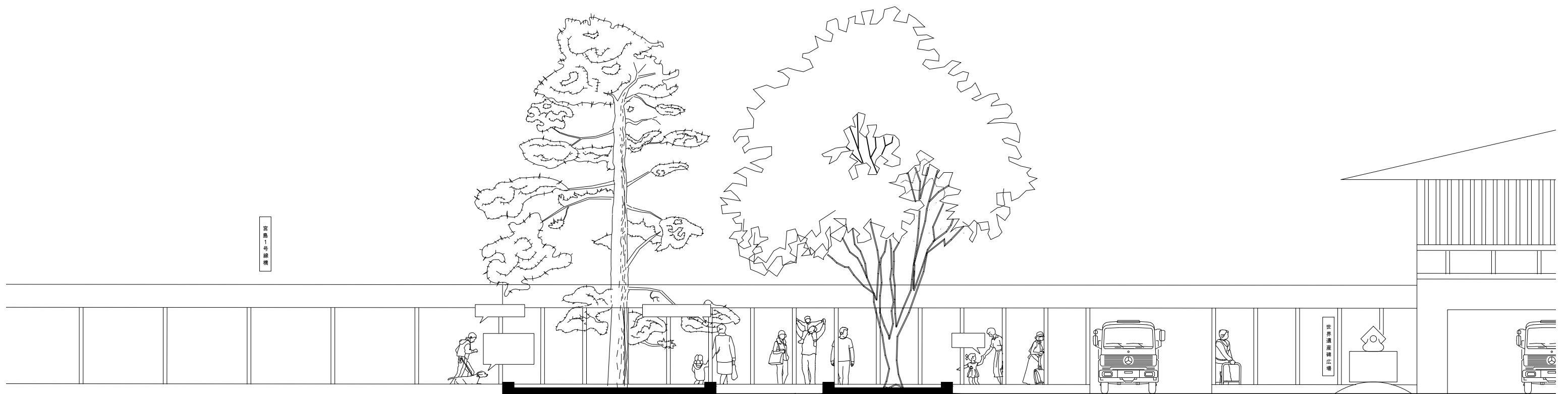


Fig 4.4 Existing port analysis section (part two).

VISUAL OBSTRUCTION

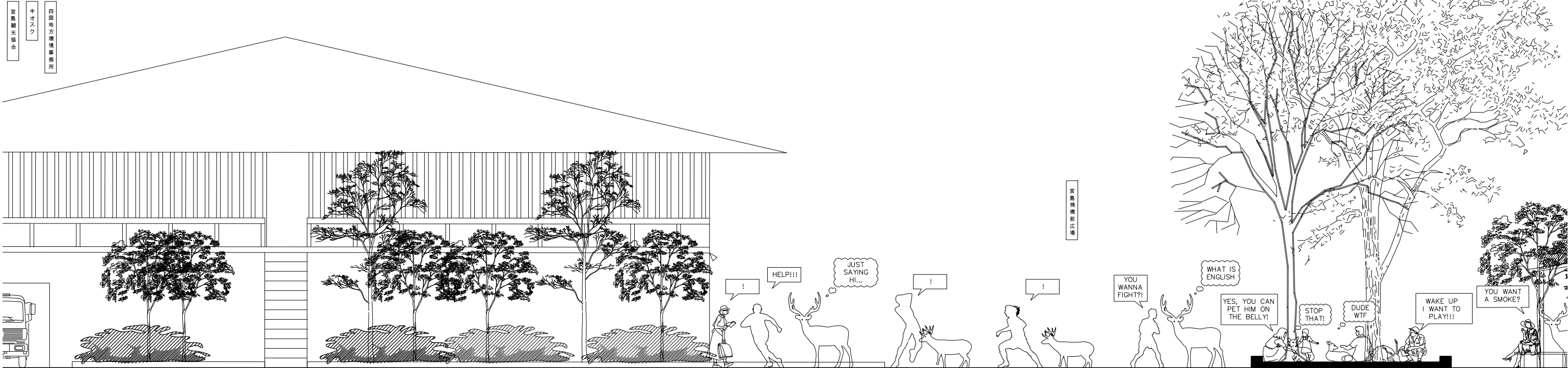


Fig 4.5 Existing port analysis section (part three).

RESULTING ZONE OF CONFLICTS



Fig 4.6 Existing port analysis section (part four).

visitors, as well as detriments to deer health and safety.

OVERALL SITE FRICTIONS:

From these observations, the shortcomings of the existing site, in terms of recognition of the deer inhabitants of the island and preventing interspecies conflicts, appear to be the following:

1) The landscape and architecture of the port does not appropriately reflect the state of island residency, and physically conceals the existence of Sika deer on the island. The deer inhabitation is not considered in the design of the existing port.

2) There is a lack of understanding and awareness of the deer by humans, exacerbated by the clear interior-exterior boundaries of the site. It is assumed by the tourists that the built environment should be occupied by humans, while the 'wild' should be occupied by the deer. This notion is misleading as deer already occupy the human-built realm on the island (including the open plaza outside the ferry terminal).

3) The interface between the tourist (exterior) and the deer (interior) on the island is too sudden, and does not allow for the two species to familiarize with each other.

OVERALL SITE OPPORTUNITIES:

In response, the opportunities for intervention, in order to decrease interspecies conflict, are the following:

1) Return the ground plane at the port to the sika deer by providing further setbacks, burying parking lots, and exploding the existing port terminal across a larger site with interspersed vegetated land in between programs for deer grazing. Consider deer occupation and circulation in the design of the newly revealed landscape.

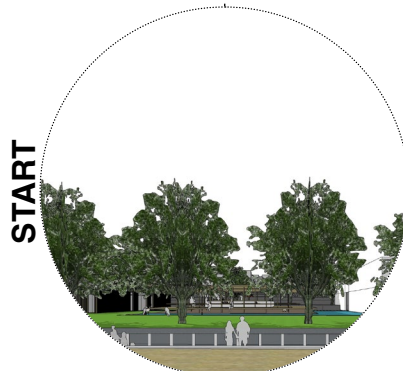
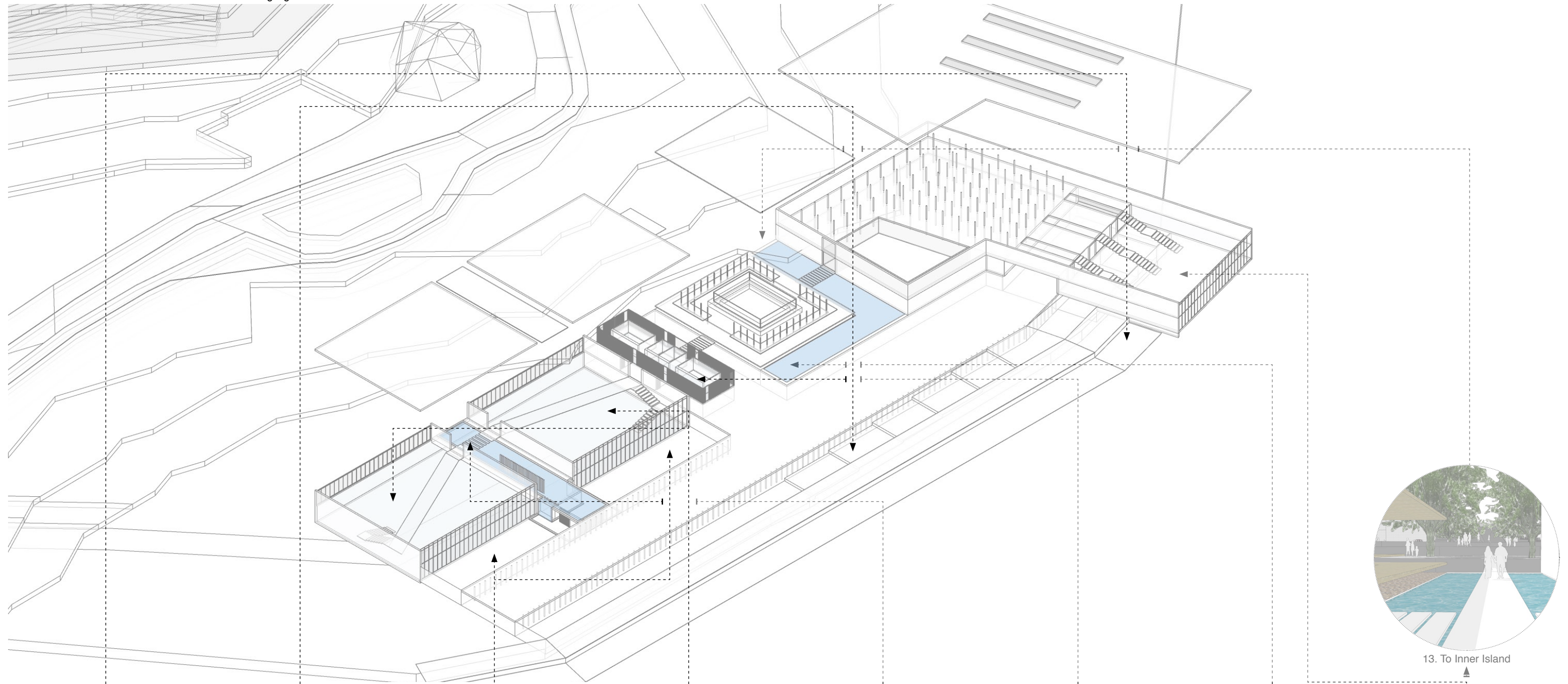
2) Blur the boundaries between human space and deer space by frequently

interspersing exterior and exterior space in the new port/visitor centre complex. Design outdoor spaces such as ponds and gardens with both human and deer use in mind, and clearly delineate such to human users via architectonic elements.

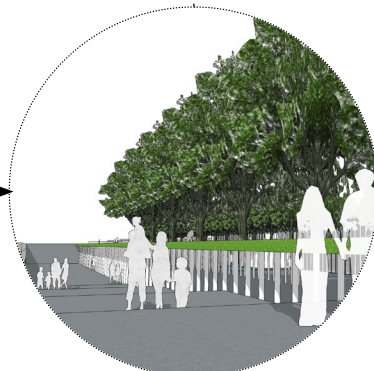
3) Lengthen and slow procession from ferry exit to island interior. Create view points from which tourists can see but can not interact with the deer. Add programs of observation and education between the ferry exit and the island interior, such as deer ecological museums, teahouses, and splash ponds for the deer. Slowly allow human visitors to interact with the deer in a guided and informed manner.

Fig 4.7 Proposed port/visitor centre complex axonometric, with revised boundaries and interfaces of hman-deer interactions highlighted.

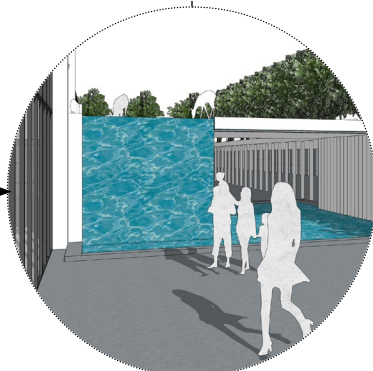
REVISED BOUNDARIES / INTERFACES:



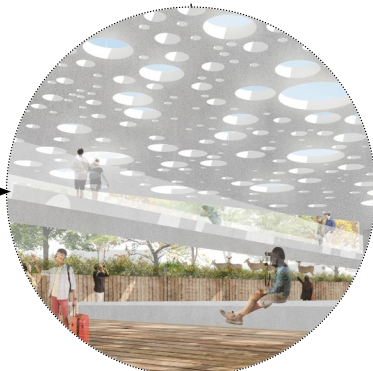
1. Ferry Arrival



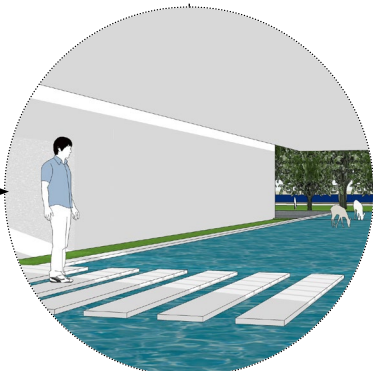
2. Terracing Plaza



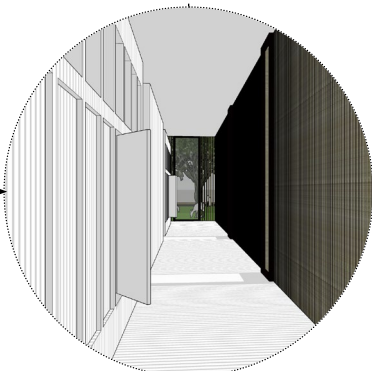
3. Sunken Plaza
3-a. Deer Pond Waterfall



4. Ferry Terminal Main Hall
5. Deer Observation Area
6. Skywalk



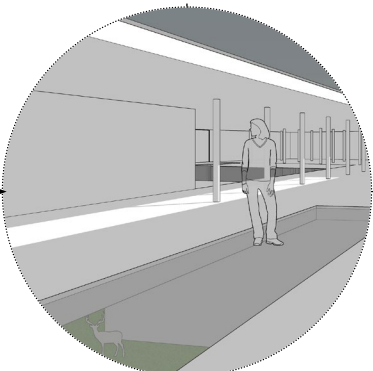
7. Deer Pond Bridge



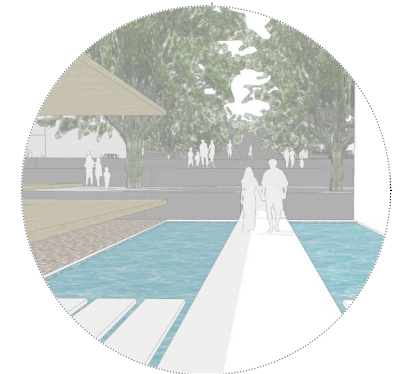
8. Storage Lockers / WC



9. Teahouse
10. Footbath Pond
11. Deer Pond Bridge



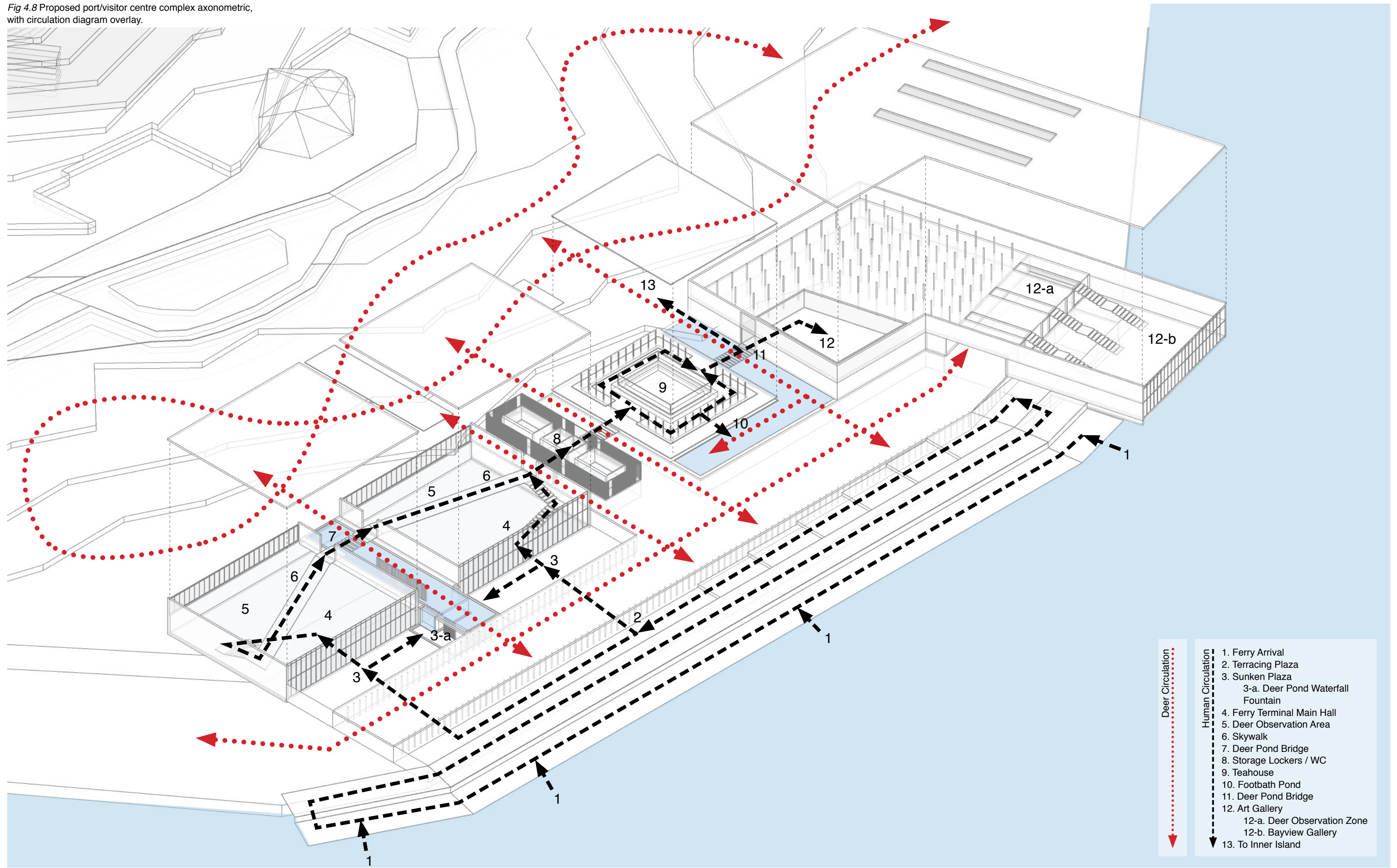
12. Art Gallery
12-a. Deer Observation Zone
12-b. Bayview Gallery



13. To Inner Island

START

Fig 4.8 Proposed port/visitor centre complex axonometric, with circulation diagram overlay.



- Deer Circulation
 - 1. Ferry Arrival
 - 2. Terracing Plaza
 - 3. Sunken Plaza
 - 3-a. Deer Pond Waterfall Fountain
 - 4. Ferry Terminal Main Hall
 - 5. Deer Observation Area
 - 6. Skywalk
 - 7. Deer Pond Bridge
 - 8. Storage Lockers / WC
 - 9. Teahouse
 - 10. Footbath Pond
 - 11. Deer Pond Bridge
 - 12. Art Gallery
 - 12-a. Deer Observation Zone
 - 12-b. Bayview Gallery
 - 13. To Inner Island
- Human Circulation
 - 1. Ferry Arrival
 - 2. Terracing Plaza
 - 3. Sunken Plaza
 - 3-a. Deer Pond Waterfall Fountain
 - 4. Ferry Terminal Main Hall
 - 5. Deer Observation Area
 - 6. Skywalk
 - 7. Deer Pond Bridge
 - 8. Storage Lockers / WC
 - 9. Teahouse
 - 10. Footbath Pond
 - 11. Deer Pond Bridge
 - 12. Art Gallery
 - 12-a. Deer Observation Zone
 - 12-b. Bayview Gallery
 - 13. To Inner Island

Fig 4.9 Proposed port/visitor centre complex plan and sections.

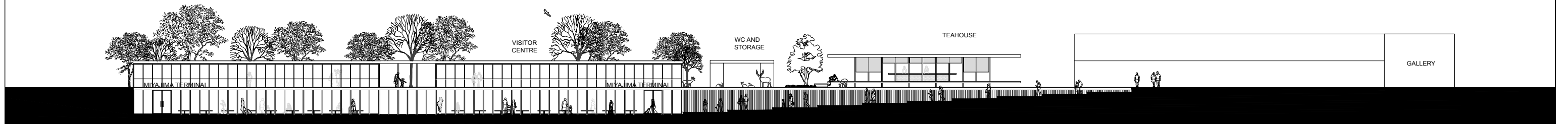
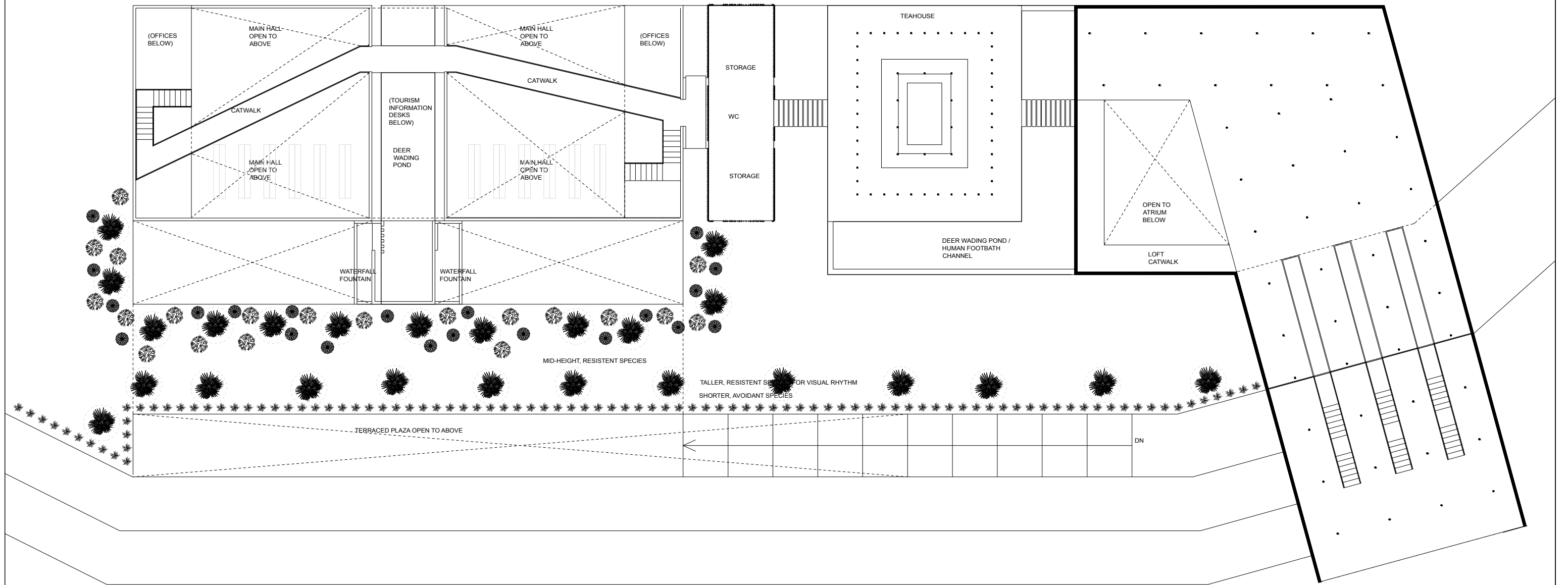
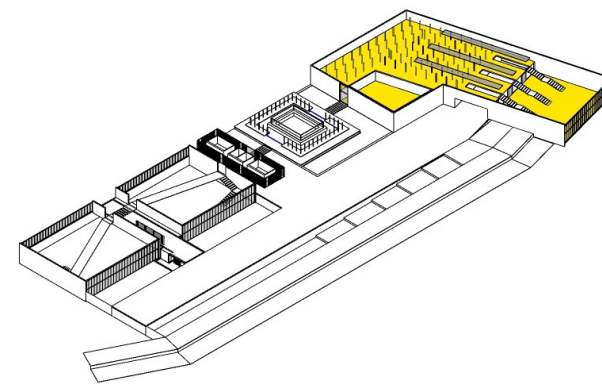
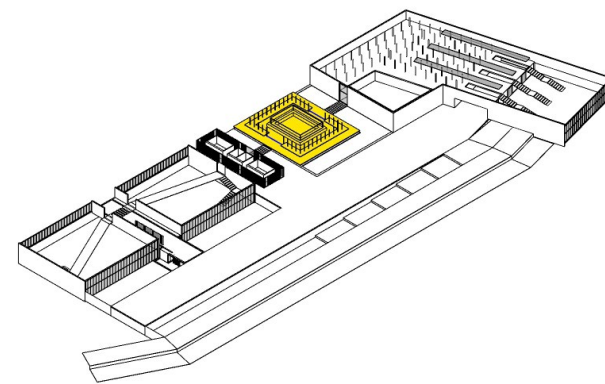
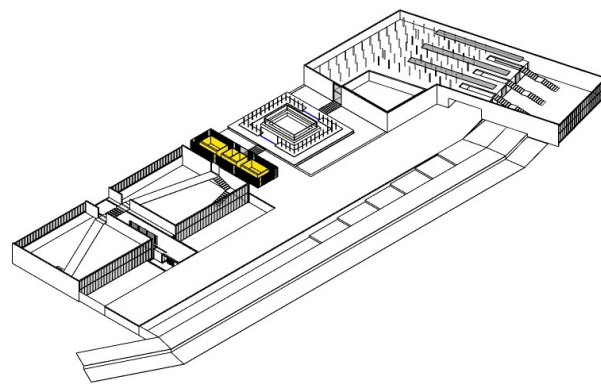
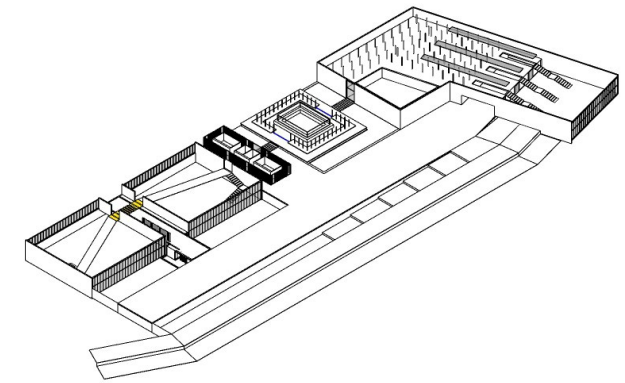
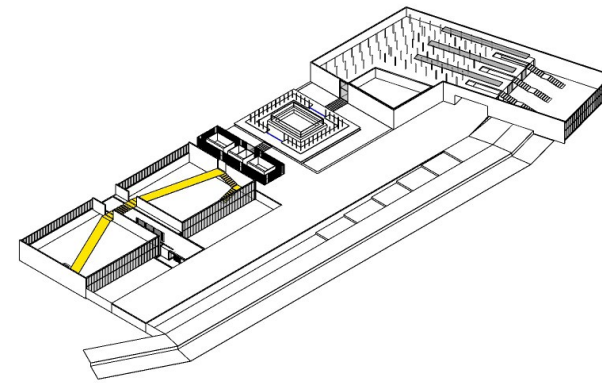
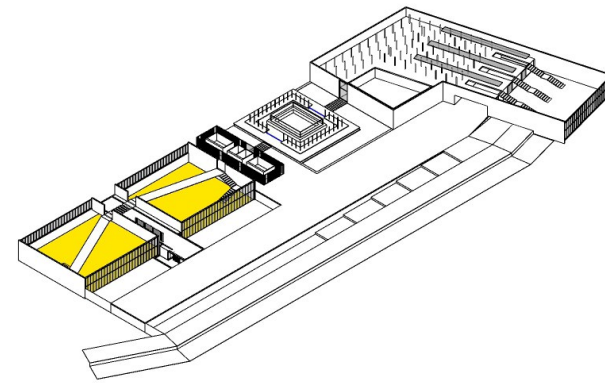
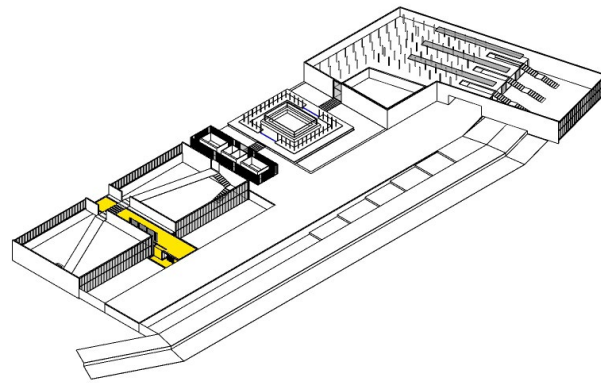
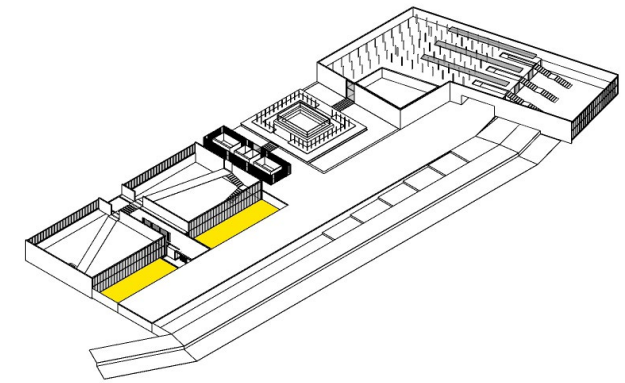
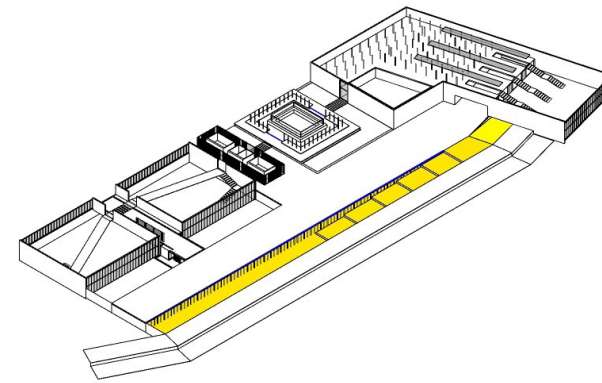
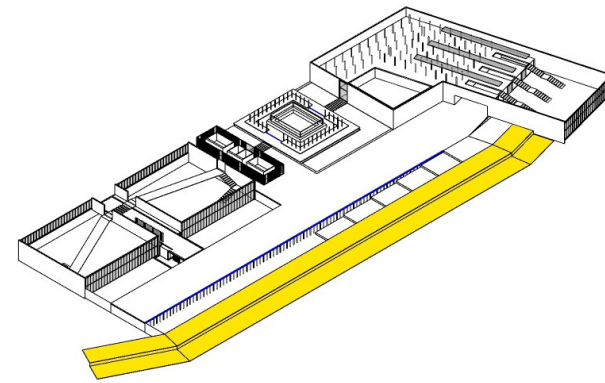
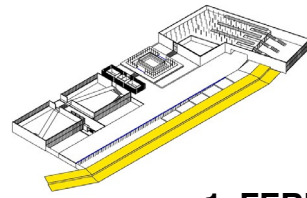


Fig 4.10 Programmatic key diagrams of proposed port/visitor centre complex.





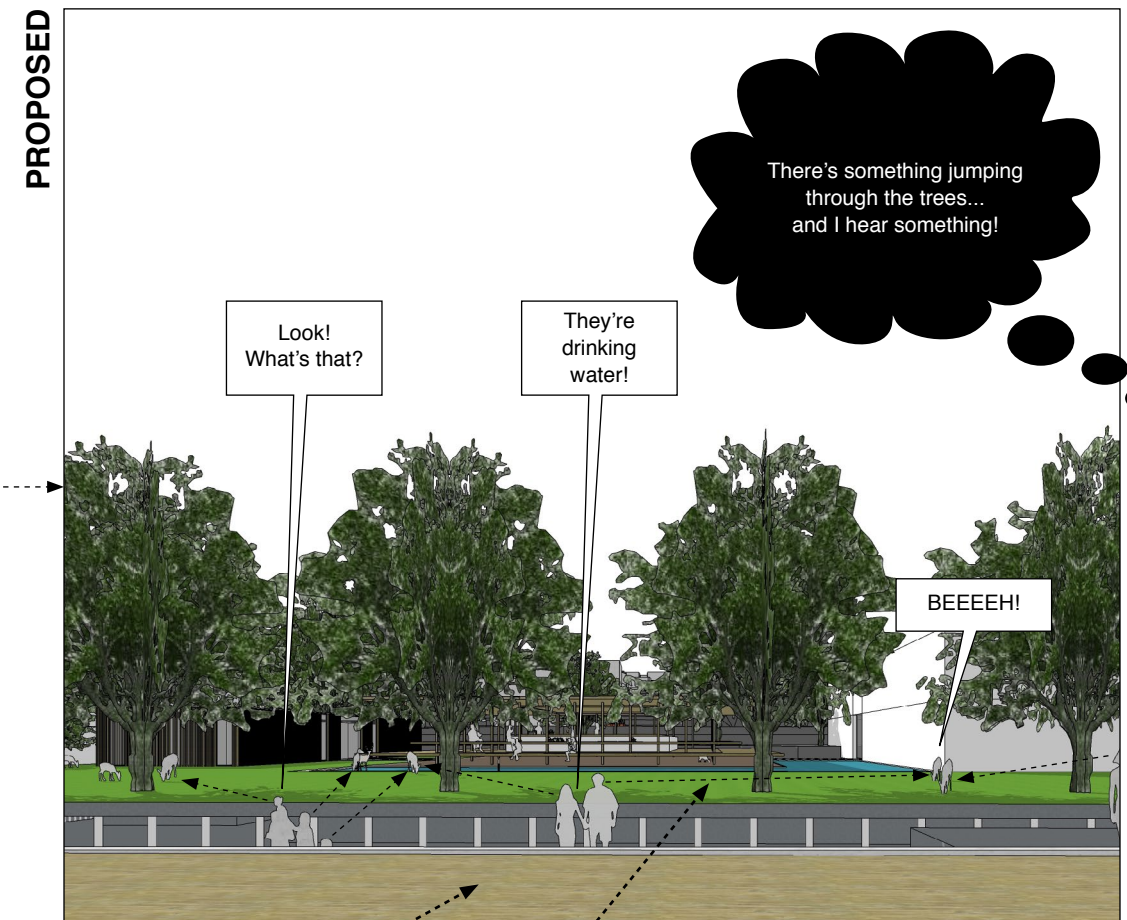
1. FERRY TERMINAL

Increased sightlines from the ferry path to the arrivals coast of the island, allowing visitors to see presence of deer herds from afar. Obstructive perpendicular piers and roofs are removed in favour of an open, parallel wharf. Buildings are setback further and parking lots buried, with newly-revealed sea-side ground planes being returned to grasslands for deer grazing.



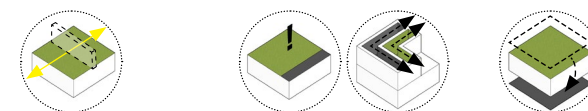
EXISTING

- Advertisement/ announcements block view to island interior
- Perpendicular piers create visual distance between visitors and island
- Area along shore all dedicated to vehicular traffic and hard surfaced
- Presence of Sika deer is suppressed



PROPOSED

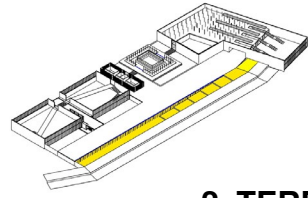
- Visually obstructive elements eliminated and relocated to Ferry Terminal Main Hall
- Open, parallel wharf/boardwalk configuration keeps sightlines open
- Return of ground plane to Sika deer; push vehicular circulation underground
- Presence of Sika deer is noticeable from first arrival



Keyword: **VIEW**

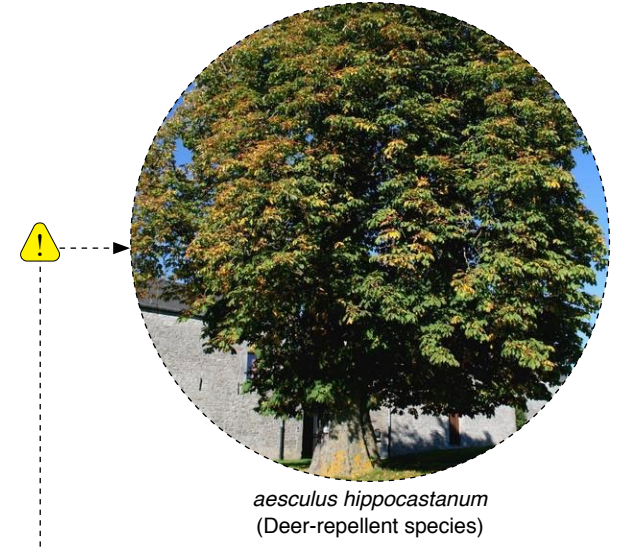
Fig 4.11 Proposed port/visitor centre key plan.

Fig 4.12 Analysis of existing ferry terminal arrival zone versus proposed ferry terminal arrival zone.

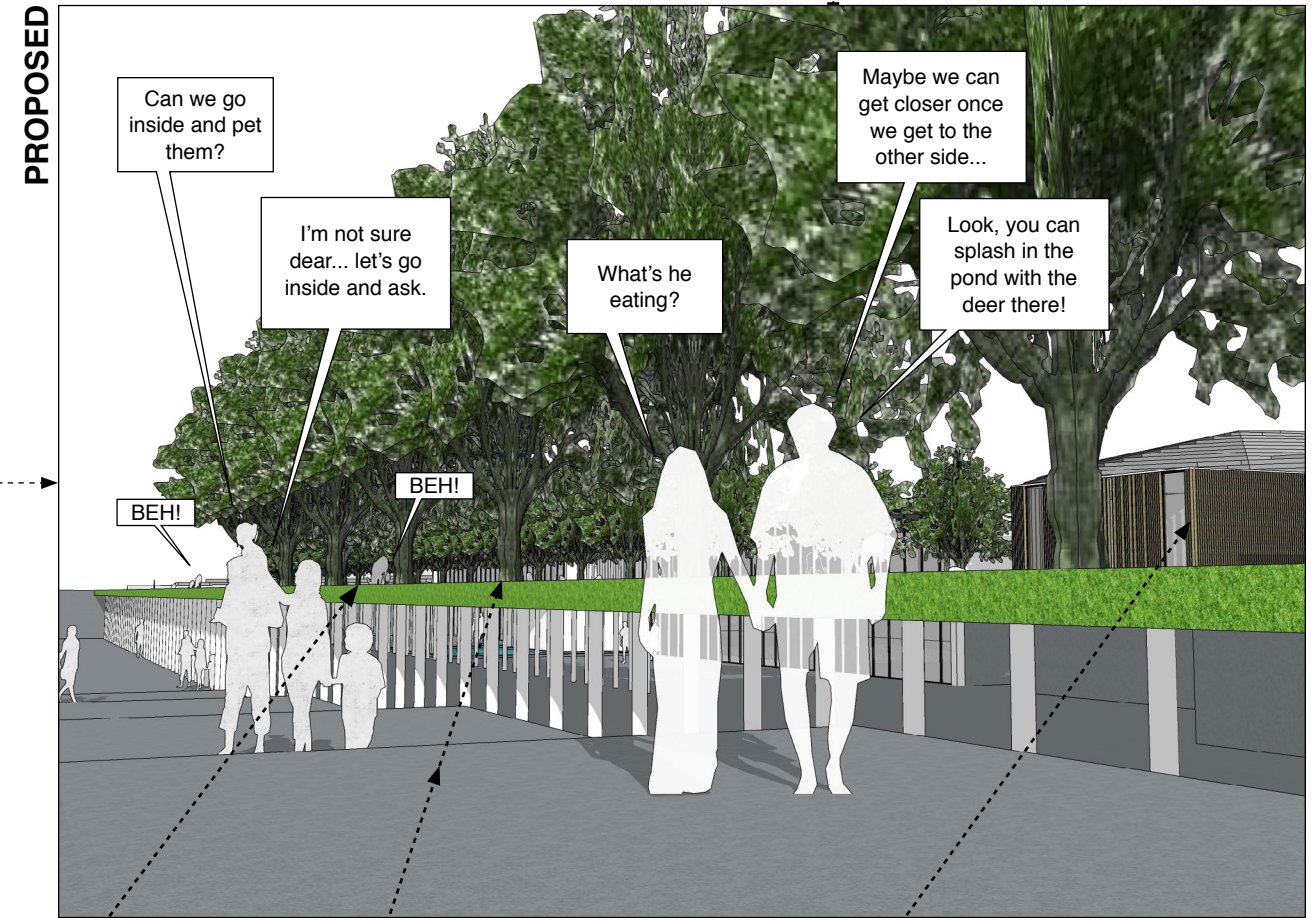


2. TERRACING PLAZA

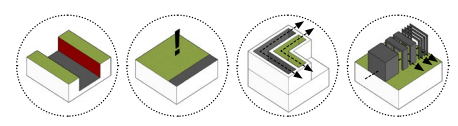
The long, terracing plaza formalizes the journey into the island, while keeping a strong visual connection between the visitor path and the deer grazing lands. The separation between the human and the deer realm is further strengthened via a variety of deer deterrent vegetation. Visitors have time to observe and study the deer's behaviour and actions as they descend.



- Various metal and wood fencing to protect pedestrians from vehicular traffic
- Ferry Terminal completely blocks off view to inner island and Sika deer
- Awkward layout creates leftover pockets of greenery/gardens which cannot be enjoyed by people or deer
- The island is closed off and concealed by the port

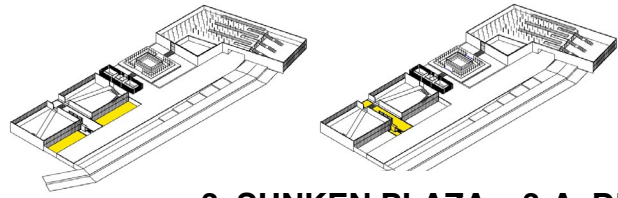


- Separation of human and deer circulation allows human observation of deer without harm to deer
- Elimination of fencing, replaced by sunken pedestrian path and deer-repellent edge vegetation, keeps sightlines clear
- Buildings are setback and vehicular traffic is pushed underground for max deer territory at island edge
- Sika deer are given protected landscape to roam freely



Keyword:
FASCINATION

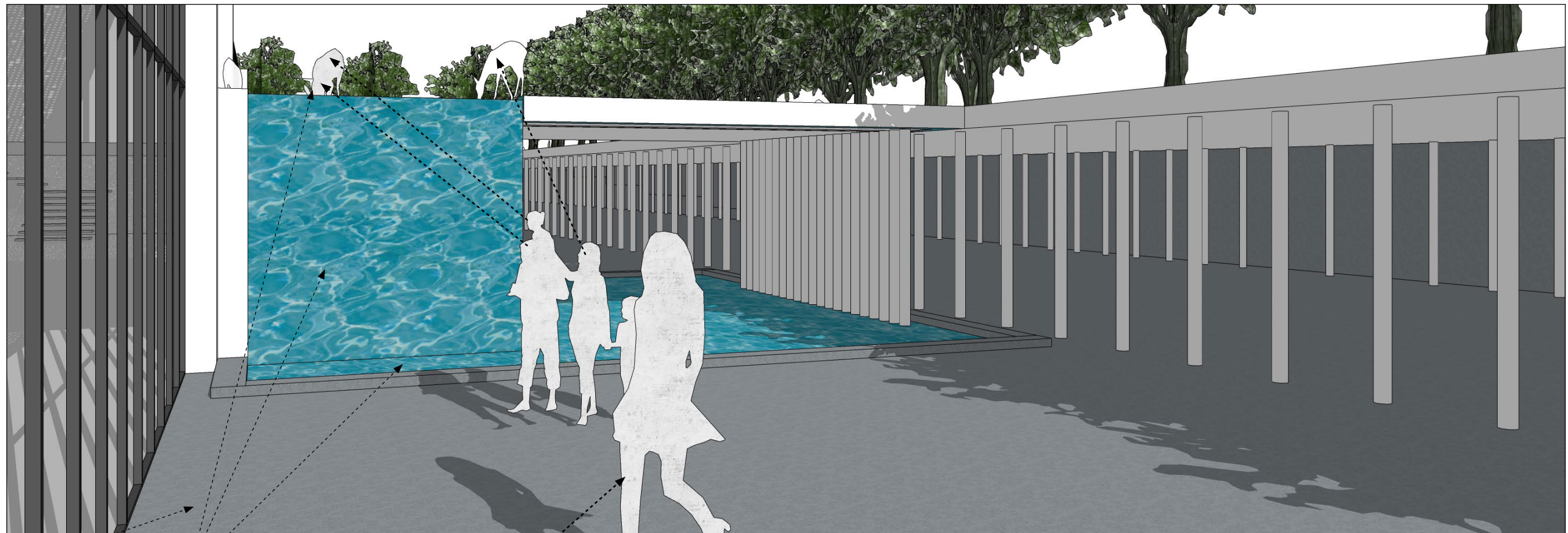
Fig 4.13 Proposed port/visitor centre key plan.
Fig 4.14 Analysis of existing approach to ferry terminal versus proposed approach to ferry terminal (terracing plaza)



3. SUNKEN PLAZA + 3-A. DEER POND WATERFALL FOUNTAIN

Currently, the main public gathering space of the island is located on the interior side of ferry arrivals terminal. While the space is functional for visitor gathering and waiting needs, the large presence of 'unexpected' deer inhabitants in the plaza makes the space chaotic. The proposed plaza, sunken and located on the exterior side of the ferry arrivals terminal, gives visitors a place to wait, gather, and observe the island in advance of occupying it. The separation of visitor and deer planes gives visitors time

to observe and prepare for interaction, instead of being 'ambushed' by their presence. The splash and drinking pond for the deer on the upper level overflows to the sunken plaza level, doubles as a waterfall feature to cool visitors in the hot summer months, and begins to draw a connection between the two species and possibilities for sharing of resources and spaces.



Outdoor public gathering + waiting space before entrance to island interiors; a place to observe the deer while waiting

Cool-down and drinking pond for Sika deer on ground level overflows to sunken plaza as a waterfall fountain feature, providing an indirect connection between the two spaces and two species

Visitors submerge and re-emerge only after 'baptism' to deer inhabitants.

Vehicular access + pick-up/drop-off is pushed underground, underneath deer grazing zone

Visitors are oriented without detriment to deer inhabitants

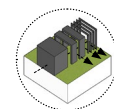
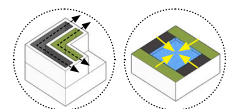
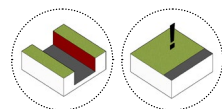
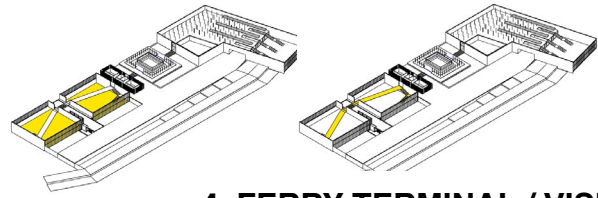


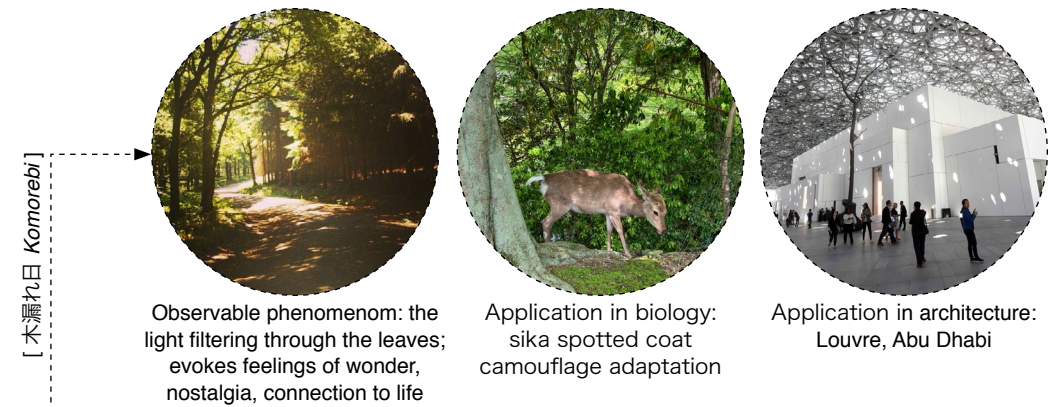
Fig 4.15 Proposed port/visitor centre key plan.
Fig 4.16 Analysis of proposed sunken plaza.

Keyword:
INDIRECT ENGAGEMENT



4. FERRY TERMINAL / VISITOR CENTRE

Building is sunken with full glazing towards the island interiors where deer inhabitants freely graze without fear of intimidation. Interiors are finished with rough wood flooring and rear wall to evoke feelings of a pavillion/ exterior space. Perforated roof in the double height space draws the gaze vertically, and translates the feelings of *komorebi* - sunlight filtering through forest canopies. This spotted lighting effect, found naturally on the islands' primeval forests, is the evolutionary driver in the sika deer's spotted coat.

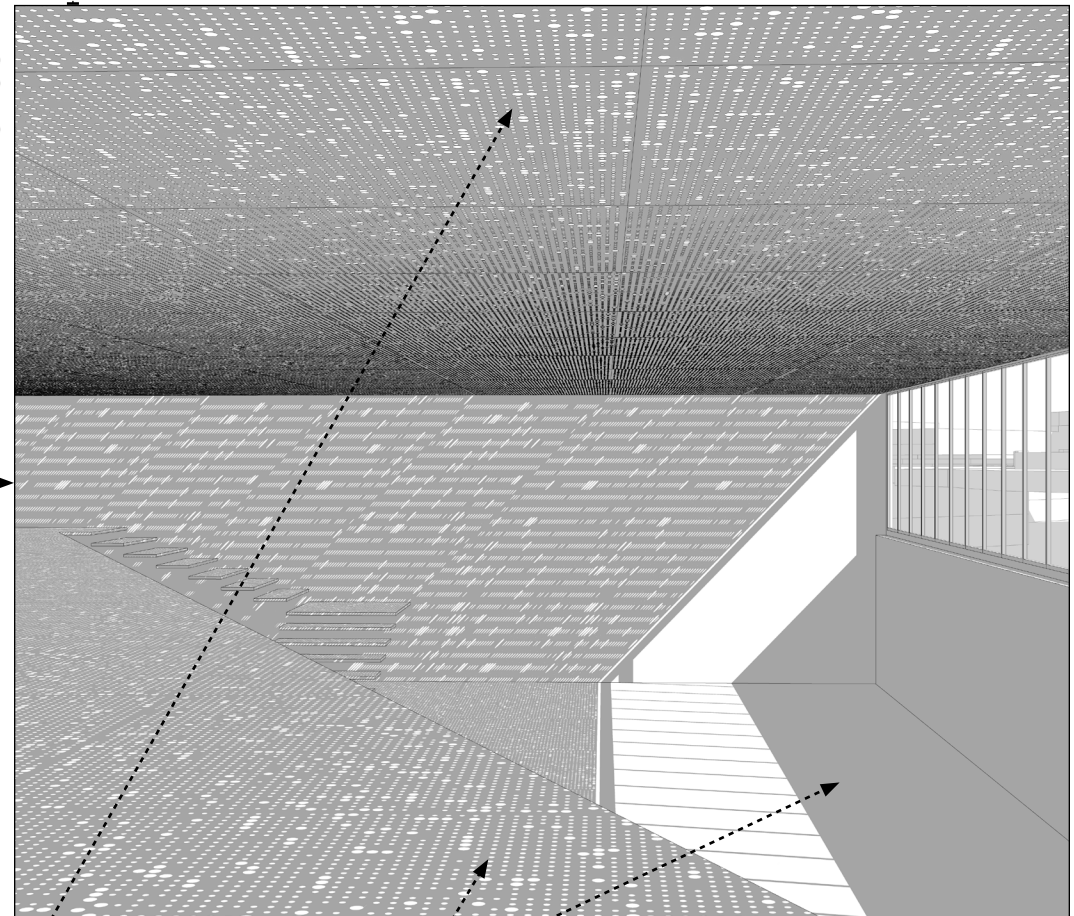


EXISTING

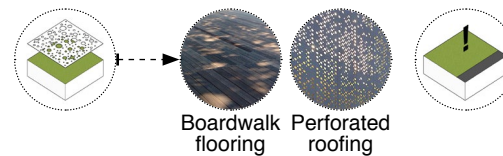


- Busy, obstructive advertisement and notices disorient visitors. There is a lack of information and spatial hierarchy.
- No visual or spatial connections to exterior or to island
- Currently, the terminal is primarily an access control point, a holding space second, and an information space last. This is not the ideal hierarchy of spatial function.
- The existing terminal lacks spatial clarity and offers no connections to the island or the deer inhabitants

PROPOSED



- Materiality creating an indoor human space which evokes the feelings of being outdoor; capturing the deer *umwelt* for human visitors to experience
- Main floor is reserved for deer observation and waiting while circulation is pushed up via the skybridge
- The ferry terminal acts as the *anti-zoo*; visitors are enclosed in the territory of the deer inhabitants



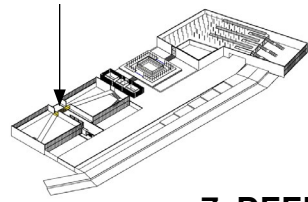
Keyword: UMWELT

Fig 4.17 Proposed port/visitor centre key plan.

Fig 4.18 Analysis of existing ferry terminal/visitor centre versus proposed ferry terminal/visitor centre.

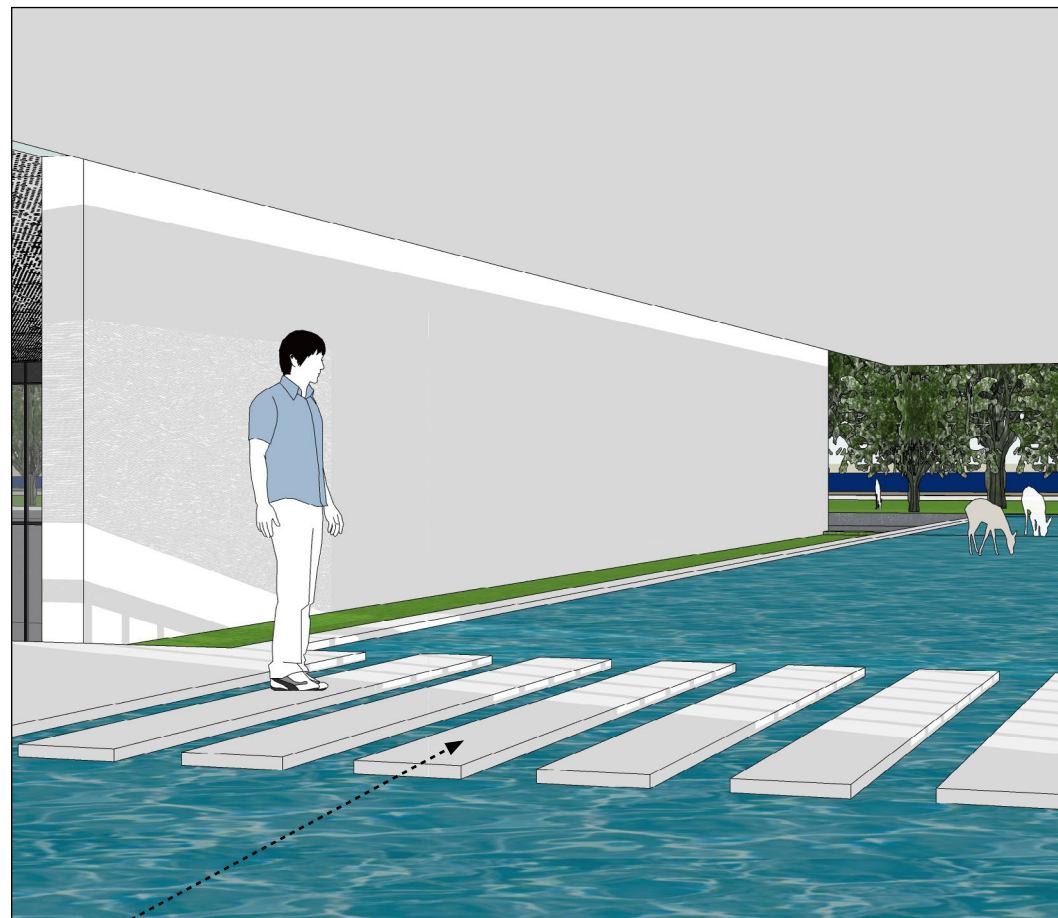


Fig 4.19 Visualisation of proposed visitor centre / ferry holding hall.



7. DEER POND BRIDGE

Exiting from the visitor hall, the deer pond bridge provides a moment of brief intersection between the human and the deer realm. The human circulation path is well-defined via floating paving stones, to encourage tourist to stay on-path and wait for deer to approach, rather than veering off into the landscape to provoke the deer.



Human and deer territory begin to blend gradually (walls, ceilings, floors begin to open) but visitor paths are still strongly notated via bridgeway

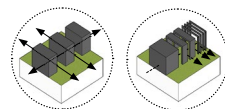
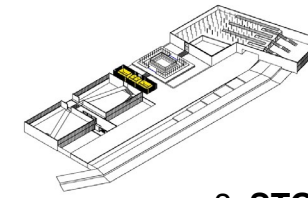


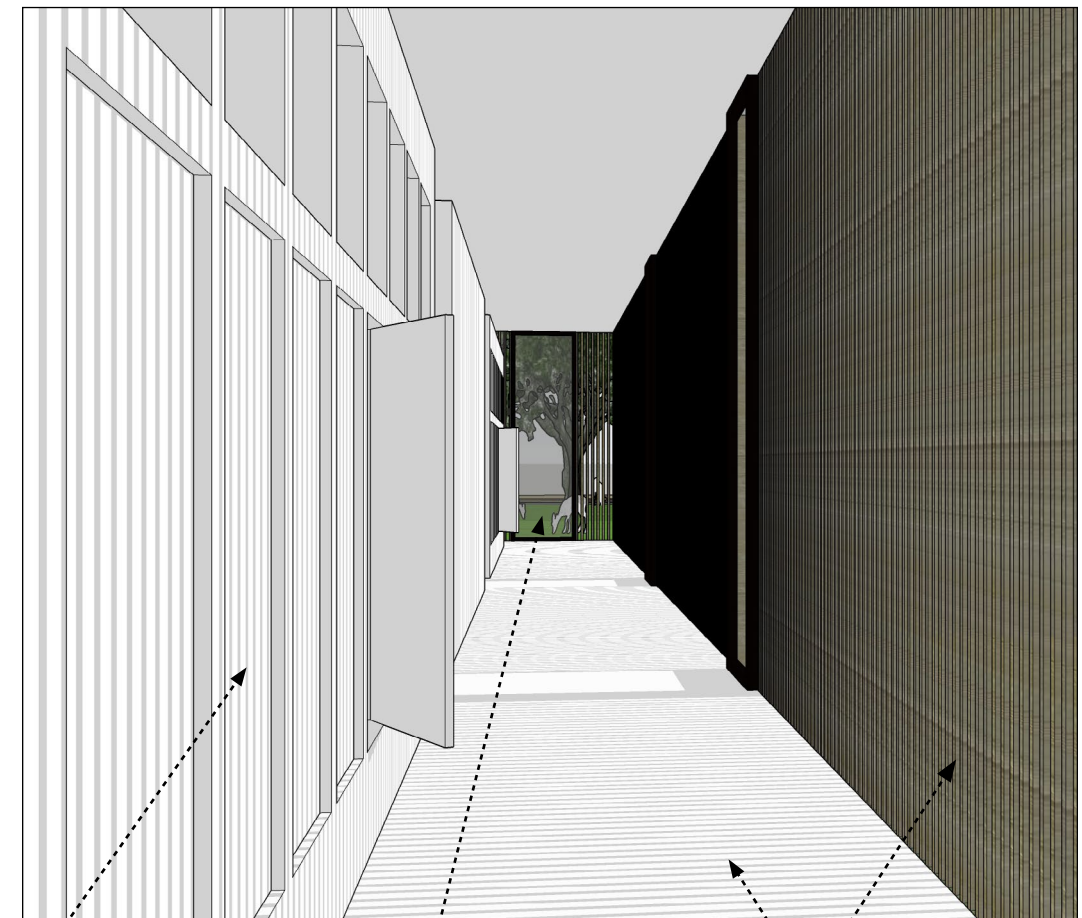
Fig 4.20 Proposed port/visitor centre key plan.
Fig 4.21 Analysis of proposed deer pond bridge.

Keyword:
GUIDED INTERSECTION



8. STORAGE / WC

Stopping by the storage zone, visitors can store their object burdens in order to explore the island more freely and attentively. Throughout the process of cleansing and preparation, sightlines to the deer are maintained to build anticipation.



Visitors have a dedicated space to store their luggage and other object burdens in order to explore the island more freely and attentively

Through the process of cleansing and preparation, sightlines to the deer and exterior island are maintained to build anticipation

Fin facade, in conjunction with natural light, build further feelings of rhythm and anticipation

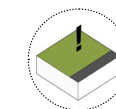
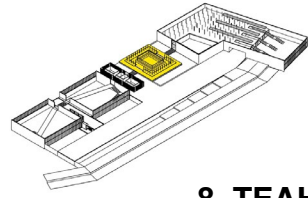


Fig 4.22 Proposed port/visitor centre key plan.
Fig 4.23 Analysis of proposed WC and storage zone.

Keyword:
CLEANSE / PREPARATION



8. TEAHOUSE / FOOTBATH / POND

The proposed teahouse combines both Miyajima's cultural and ecological history. Here, visitors can purchase a tea for themselves, and special digestible grain crackers to feed the deer with. The pond provides a cool footbath for visitors in the hot summer months, which also provides fresh water hydration for the deer. The way of tea, the leisure of footbaths, and the food cycle of the deer are woven into one with the teahouse as the hub.



Exterior pond serves both as a traditional Japanese outdoor footbath [足湯 *ashiyu*] and a cooling and drinking pond for Sika deer. This space highlights both Miyajima's cultural and ecological history.

Introduction to traditional Japanese tea culture, with a panoramic view of Miyajima's main shore and deer landscape.

Secondary holding area with visitors who are waiting for the next ferry to exit the island. Clear views to shore gives visitors plenty of time to head down to the terminal.

鹿煎餅 *Sika senbei* deer crackers are available for purchase, with proceeds going to the island's deer support funding. Tea masters instruct visitors on the correct way of feeding and interacting with deer.

The way of tea, the leisure of footbaths, and the food cycle of the deer are woven into one with the teahouse as the hub and the tea master as the mentor.

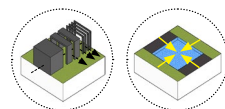
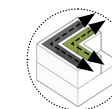
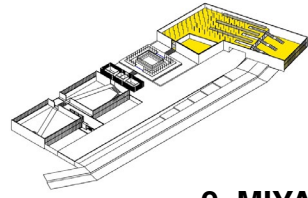


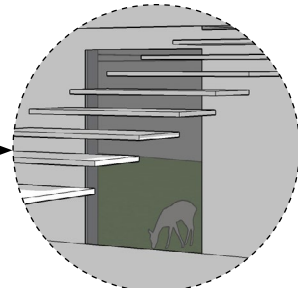
Fig 4.24 Proposed port/visitor centre key plan.
Fig 4.25 Analysis of proposed teahouse and footbath pond.



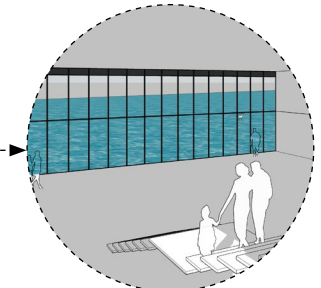


9. MIYAJIMA ECOLOGICAL MUSEUM / GALLERY

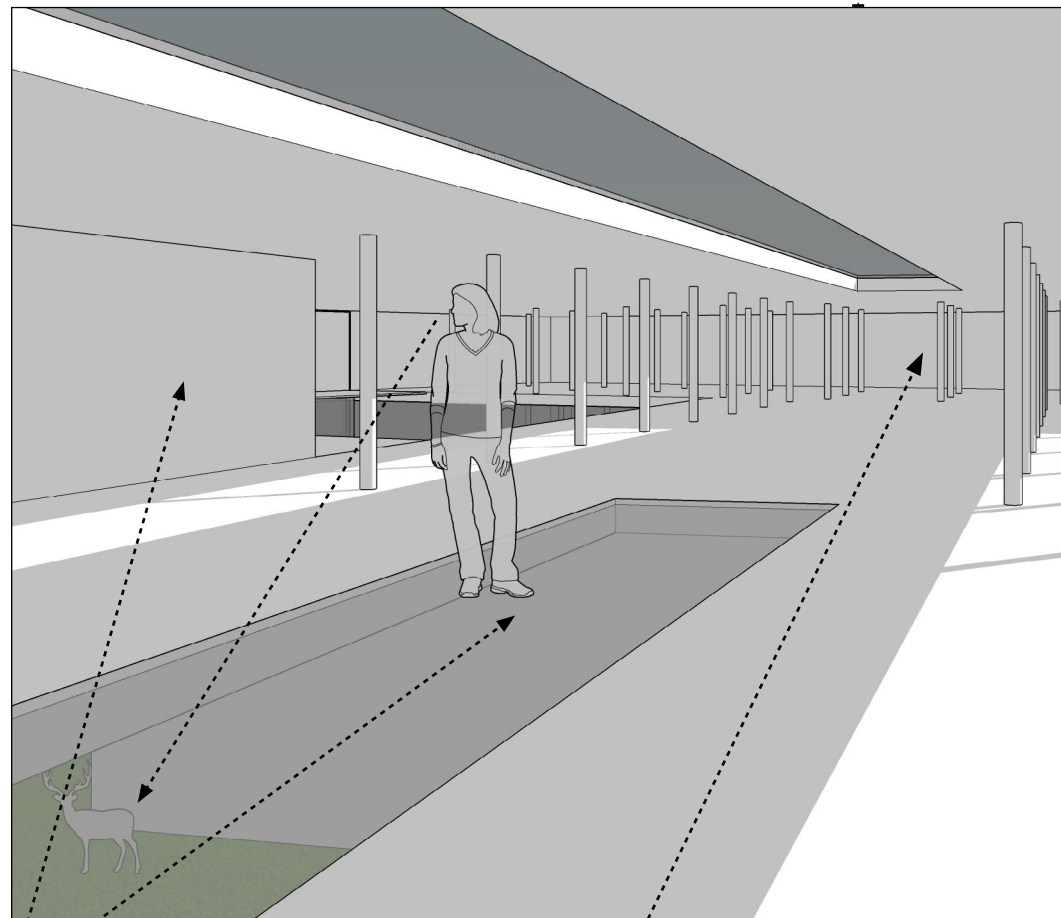
Last in the visitor complex is the live ecological museum and gallery. Strategic cuts in the floors and walls of the gallery space allow visitors to cross-reference present deer behaviours with historical artworks.



Glazed exterior partition detail.



Interior view out to Hiroshima Bay.



Glazed floor highlights path of deer travel below; present deer behaviours can be cross-referenced by visitors to the historical archives and artworks displayed in the gallery.

Upper level open plan 'forest gallery' uses structural grid to offer flexible artwork display system and customization options for organization and wayfinding.

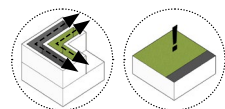
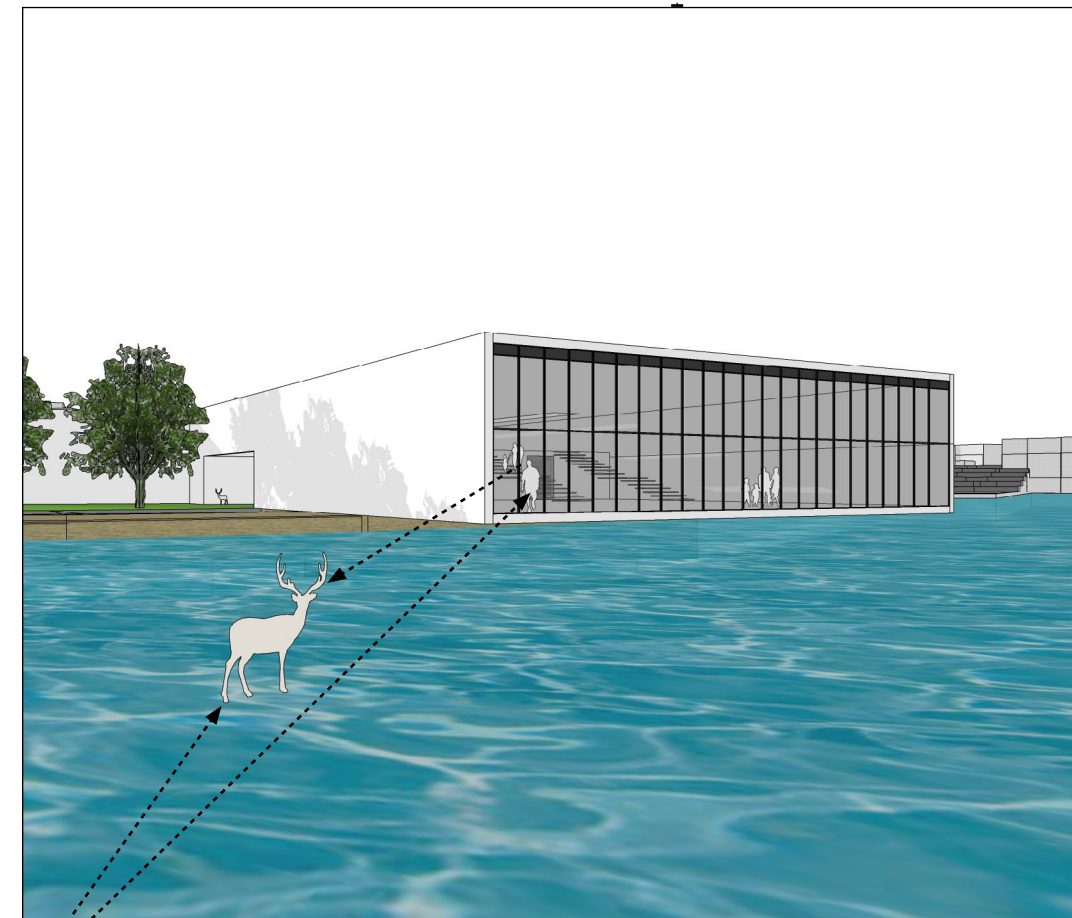
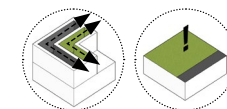


Fig 4.26 Proposed port/visitor centre key plan.
Fig 4.27 Analysis of proposed Miyajima ecological museum.

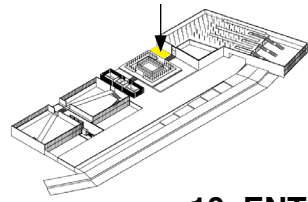


Bay-facing gallery allows observation of water-side activities. Sika deer are excellent swimmers and will occasionally frolic by the shore, disappearing into and emerging out of the water.

Double-height space offers open panoramic view towards Hiroshima Bay across the bay.

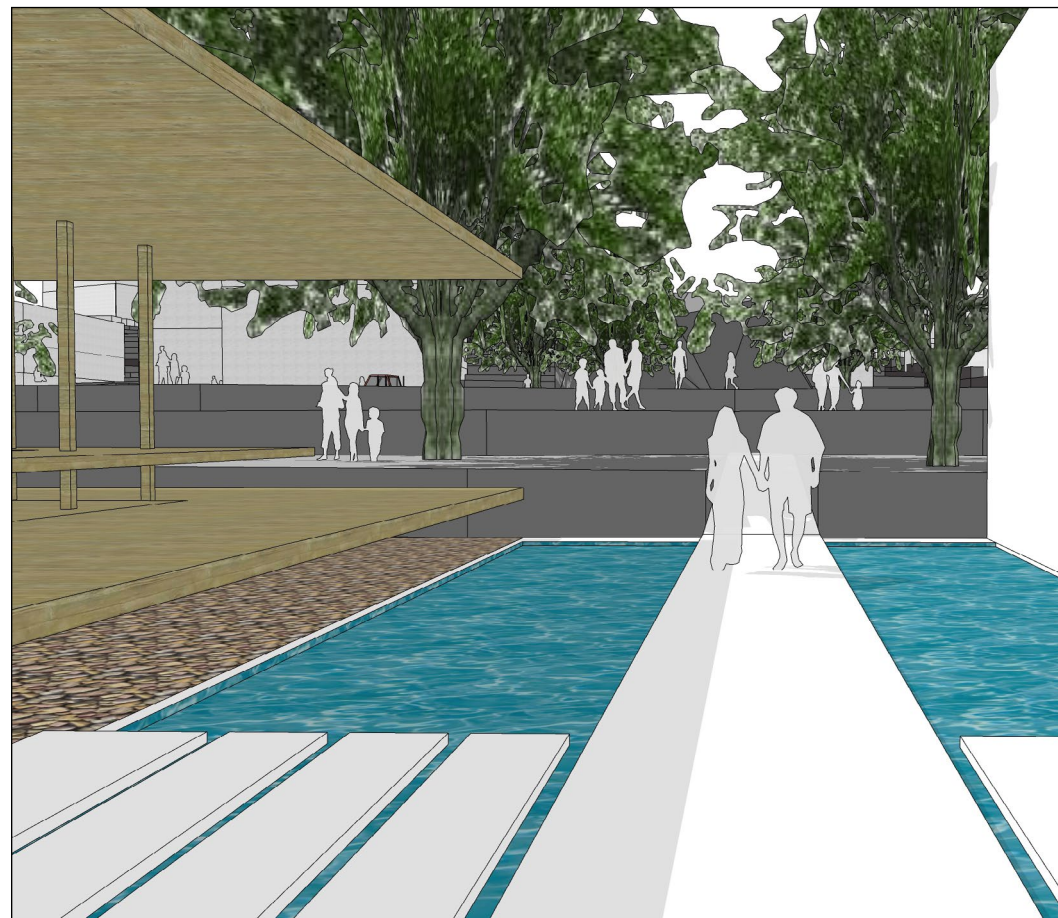


Keyword:
REFERENCE



10. ENTRY TO ISLAND INTERIOR

Only after the tourist has been immersed through the entirety of the visitor centre complex are they brought into the island interior.



In summary, the port returns the ground plane to the deer, recognizes the deer as inhabitants of the space, separates visitors and deer initially until enough observation and studying has been undertaken, stratifies the circulation for gradual exposure and interaction, before allowing visitors to fully navigate the deer-inhabited island freely.

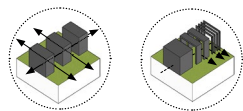


Fig 4.28 Proposed port/visitor centre key plan.
Fig 4.29 Analysis of proposed Miyajima ecological museum.

Keyword:
INTEGRATE

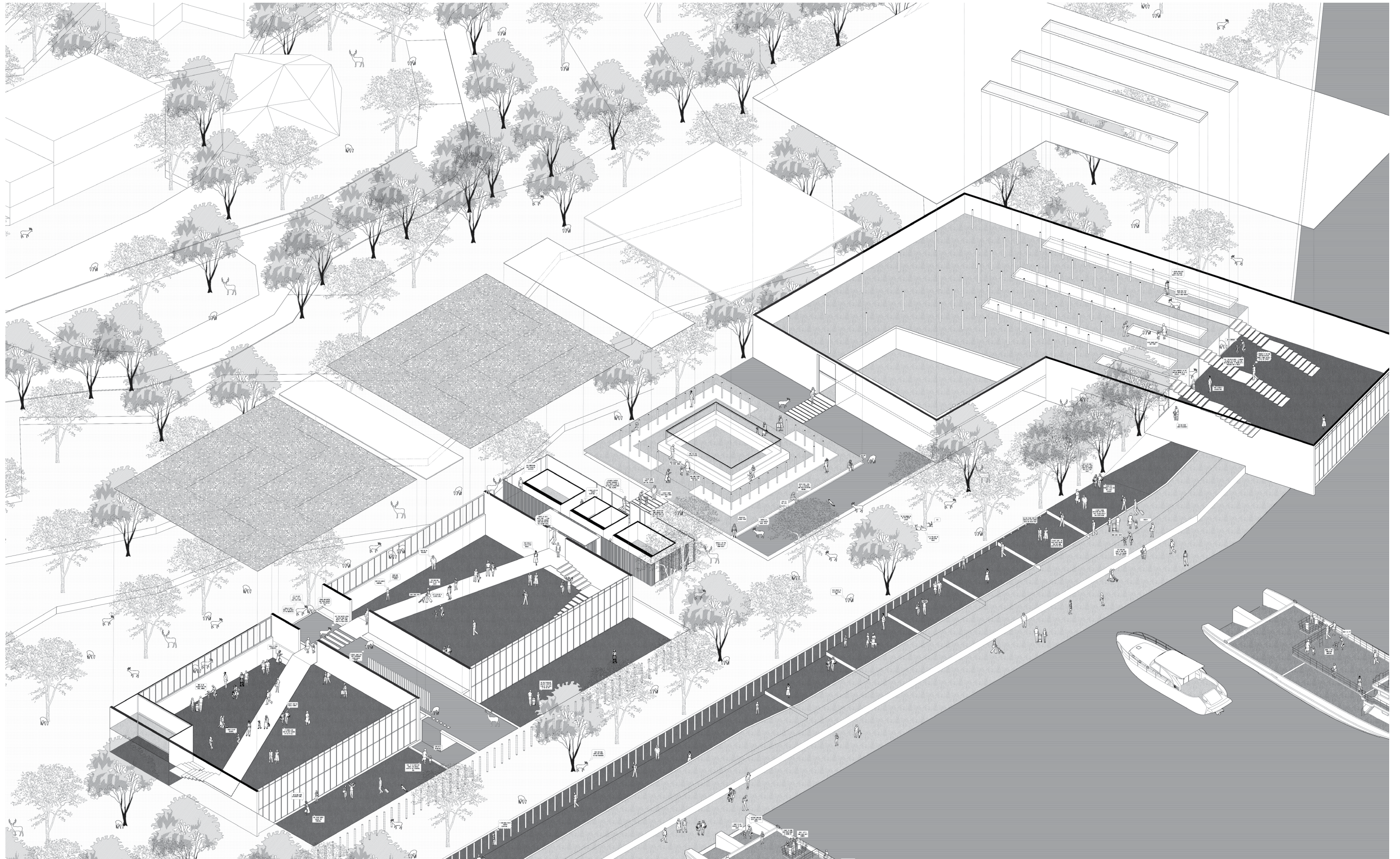
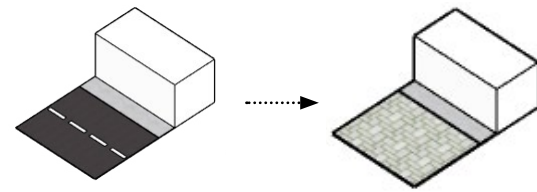


Fig 4.30 Animated axonometric of proposed port/visitor centre complex.



CROSSING.



34°18'06.9"N 132°19'22.2"E

Fig 4.31 Parti diagram for proposed transformation.

CONTEXT:

Miyajima's difficult terrain and historical spiritual significance leaves most of the island's topography unexcavated and unpaved. Only about one half of the island's coast is accessible by car, and only the urbanized area within a 500 square metre radius of the ferry terminal/Omotosando Market Street/Itsukushima Shrine are paved for vehicular traffic. As almost all tourist attractions and island residences are within walkable distance to the urbanized centre, the use of vehicles is mostly limited to the use of transportation of goods, mobility access, maintenance and services, and shuttle buses.

The section of Miyajima Prefectural Road No. 43 outside the ferry terminal is frequented by pick-up/drop off vehicles, pedestrian tourists, and deer alike. For pedestrian tourists, this section of the road separates the entrance/exit gateway to the island, and the food stalls/tourist attractions. For the vehicular traffic, this road connects their riders to their designated hotels and guesthouses. For the sika deer, this road leads from their habit in the island interior, and flocks of new tourists, each of whom is a potential food provider in the eyes of the deer. As such, despite having two designated crosswalks, one at either end of the high-traffic zone, most deer and pedestrians cross at the path which is closest to their desired target or destination.

OBSERVATIONS:

During my stay in Miyajima, I observed numerous sika deer cross from the island interior to the landscaped traffic island, to the open plaza outside of the ferry terminal (see fig. 4.32 and fig. 4.33). It's clear that this path is significant in the sika deer's daily routine. As it stands, this shared space outside of the ferry arrival terminal highly prioritizes vehicular flow. From the asphalt paving, to the raised curbs, the space connotes this sense of vehicular belonging, and makes both pedestrians and deer feel out of place.

Vehicular accidents account for a large proportion of sika deer injuries and deaths. The comfort and subsequent 'road-entitlement' which drivers feel which passing through this site leads carelessness in navigation and



Fig 4.32 Existing deer use of space.

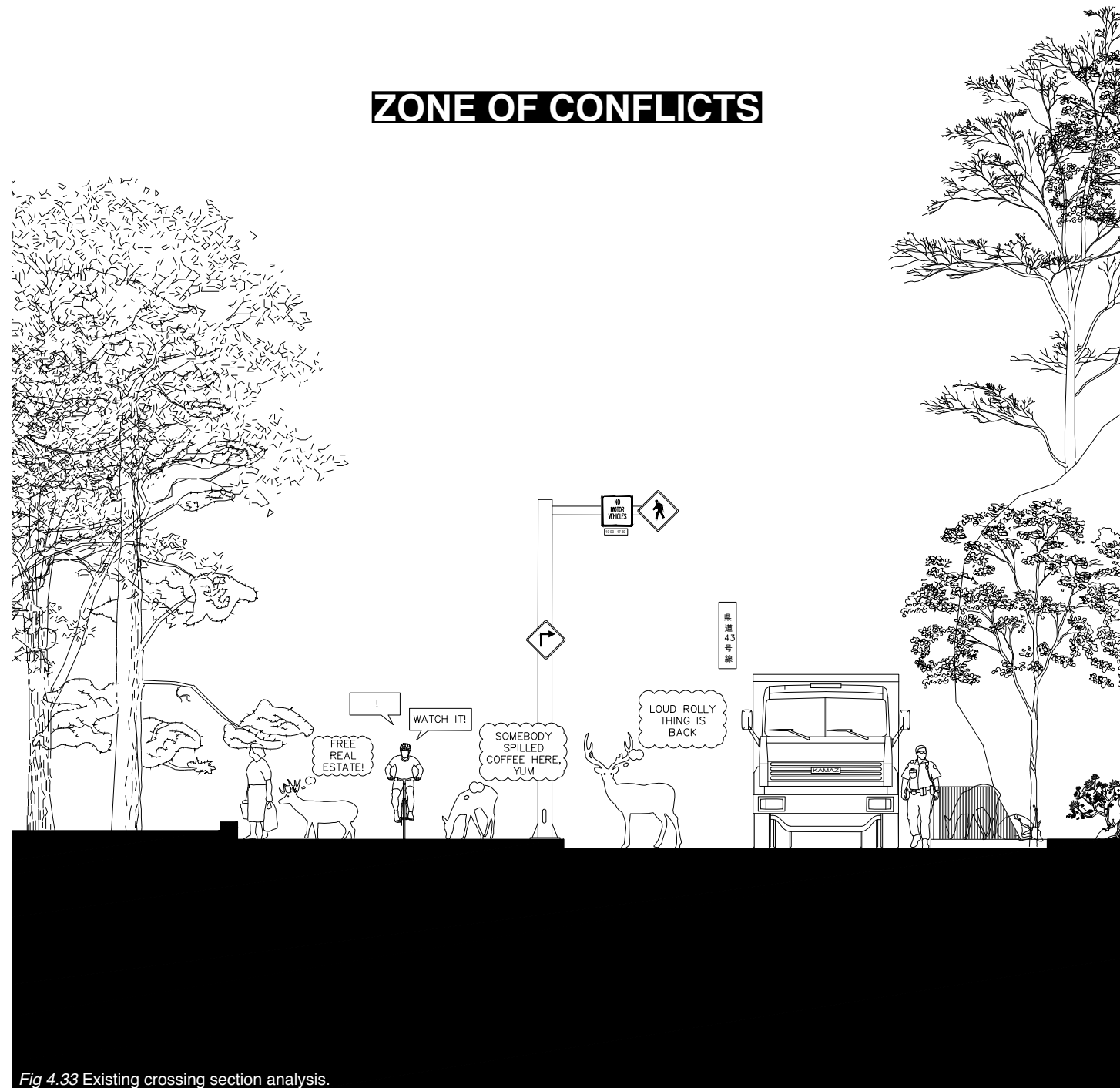


Fig 4.33 Existing crossing section analysis.

a disregard for foot-traffic (both two-footed and four-footed) presence. Furthermore, there is no need for a high-speed road at this location, as most serviced destination are local. The existing traffic island serves as a traffic calming measure as well as an ornamental decorative scape for those exiting the ferry terminal onto the island. There is potential for this under-utilized traffic island, which is already part of the pedestrian and deer crossing trajectory, to be reimagined as a connection point which is part of a safer and more comfortable foot traffic corridor network. By reimagining this section of the road as less of a highway, and more as a meeting place of two separate grains, the intersection can be conceived ecological and pedestrian corridor which supports the lateral circulation needs of both humans and deer.

SPECIFIC REVISED INTERFACES / BOUNDARIES:

For the revised crossing, the existing traffic island is turned into a stopover parkette, connecting the edge and the interior of the island. Tactile pavers surrounding the parkette add to the cognitive load of drivers, slowing vehicular passage and indicating the crossing space as a caution zone. As deer are excellent jumpers but have poor depth perception¹, the boundaries between the deer realm and the vehicular realm are strengthened via an LED post 'double-layer wall' deterrent which, doubles as street illumination at night (see fig. 4.34).

¹ "Deer (Overview) Senses - Vision," Wildlife Online, n.d., <https://www.wildlifeonline.me.uk/animals/article/deer-overview-senses-vision>).

PROPOSED

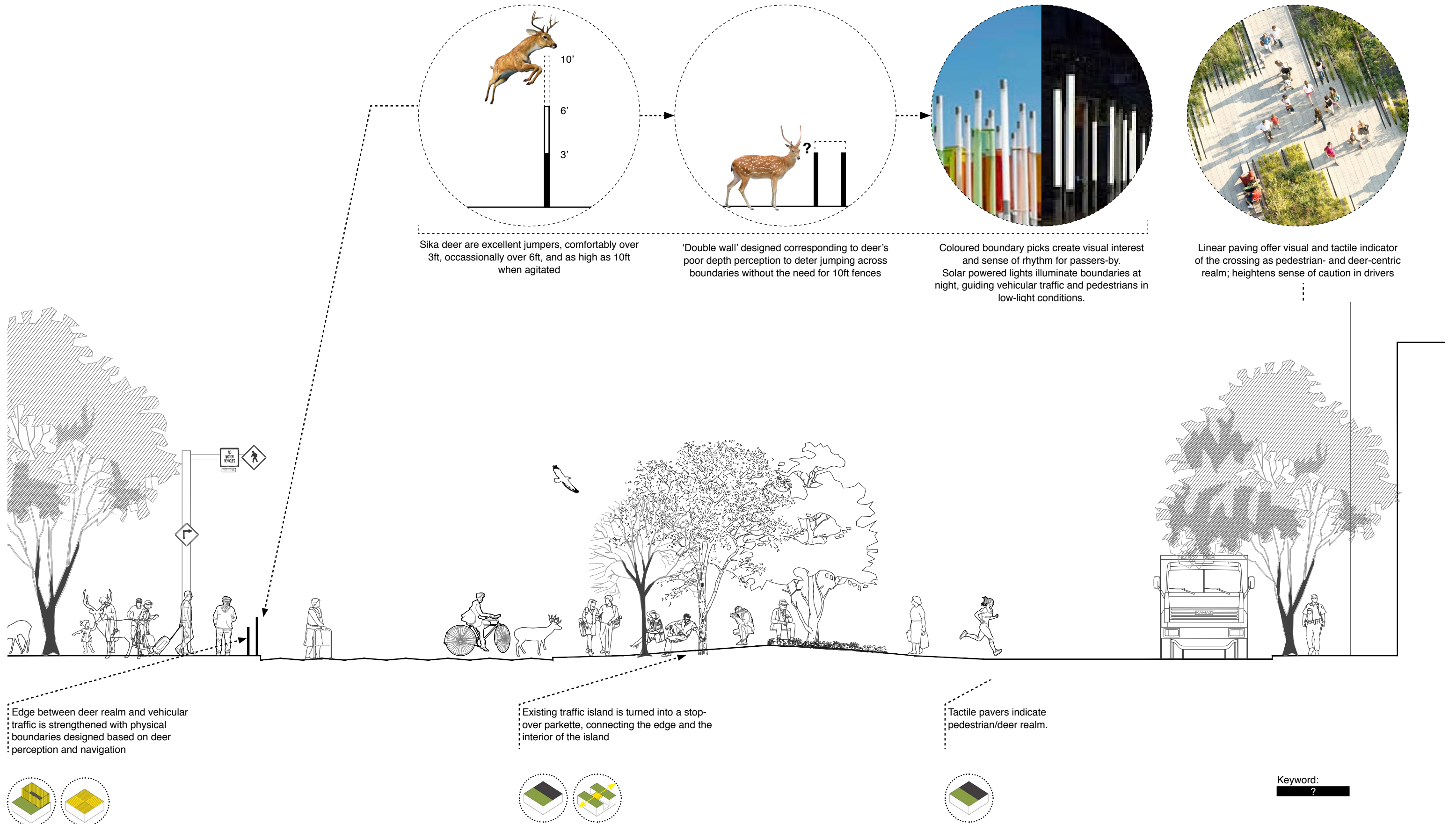


Fig 4.34 Analysis of proposed crossing.



Fig 4.35 Visualisation of proposed crossing.

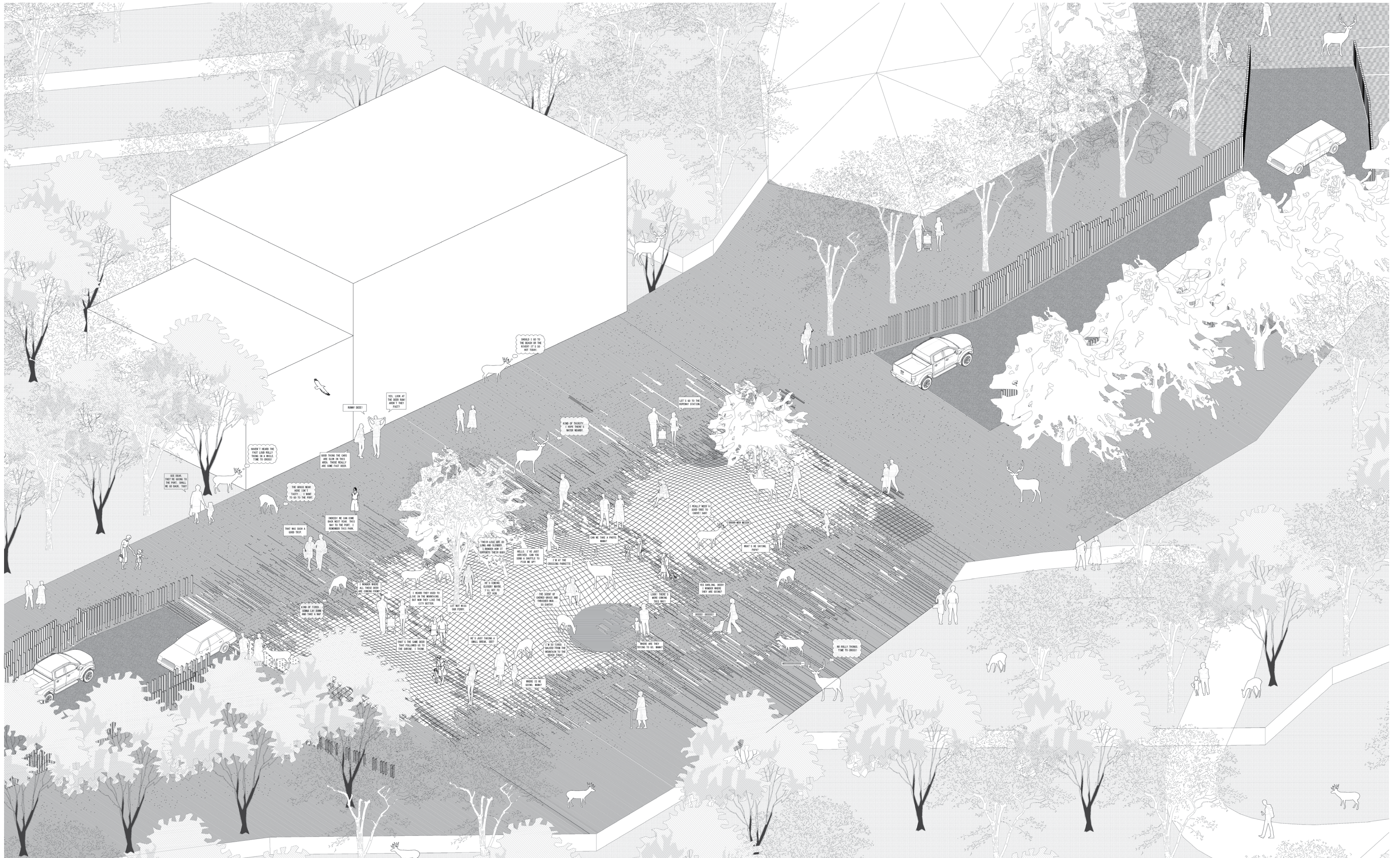
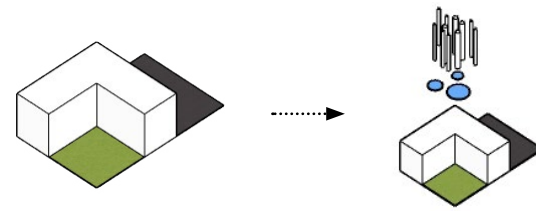


Fig 4.36 Animated axonometric of proposed crossing.



GUESTHOUSE MIKUNIYA



 34°17'40.7"N 132°19'16.9"E

Fig 4.37 Parti diagram for proposed transformation.

CONTEXT:

The traditional Japanese guesthouse (旅館 ryokan) is a type of lodging that is similar to the western bed and breakfast. Guests can expect an intimate, down-to-earth experience offered often in private family homes, interacting with the hosts who also live in the lodge. In ryokans, guests can experience the local lifestyle and culture in a more authentic manner, compared to hotels which are more lavish and corporate, and hostels which are often more budget and do not offer the intimacy of host interaction. Architecturally, ryokans typically feature straw mat (畳 tatami) floored rooms enclosed by sliding screen doors (襖 fusuma), floor bedspreads (布団 futon), communal baths (銭湯 sento), and landscaped courtyards or gardens. Hosts and guests typically wear traditional Japanese housecoats (浴衣 yukata) around the ryokan. The complete immersion in traditional clothing, food, architecture, landscape, and overall local culture is an undeniable attraction factor of the *ryokan* guesthouse to tourists¹.

OBSERVATIONS:

I lodged at Guesthouse Mikuniya for three nights during my stay in Miyajima. While the ryokan is surrounded by solid walls with a narrow entrance gate, I noticed that sika deer would frequently forage outside of the gated entrance, patiently waiting for guests to enter or exit (see fig. 4.38). In browsing photos of Guesthouse Mikuniya on Google and in speaking with the ryokan host, it was apparent that the sika deer sneak into the ryokan grounds by following guests, but are also invited in by curious guests and the animal loving host. Regardless of the method of entrance, the ryokan grounds is no new sight to the Miyajima sika deer. Once inside, the deer like to graze in the front and rear gardens, both of which currently serve no function except that of aesthetics. There is great opportunity to adapt the traditional guesthouse garden into a space that facilitates human-deer engagement and understanding.

¹ "Ryokan," Japan Guide, n.d., <https://www.japan-guide.com/e/e2029.html>.



Fig 4.38 Existing deer use of space.

SPECIFIC REVISED INTERFACES / BOUNDARIES:

I propose to continue to encourage deer visitation of ryokans, but limit deer occupancy through natural means such as scent-carrying waterways from the gardens to the entrance gates, which can communicate to stags whether a ryokan is already claimed or not (see fig. 4.40). This allows a stag and a certain number of hinds to share the ryokan grounds without aggression towards each other or the human guests. Importantly, the shared ryokan is not a zoo or a pet house. It is more in line of a seasonal migratory refuge, which will alleviate stress from the market streets as currently, pregnant deer will seek protection in densely populated areas.

The proposal modifies the green spaces of the ryokans specifically with sika deer life cycle in mind (see fig. 4.39 for diagram of sika behaviours and life cycle). The ryokan becomes an auxiliary space that offers support and protection to the deer during times of crisis and vulnerability (such as rutting and birthing seasons). Architecturally, the ryokan gardens will provide artificial totems for stags to carve and rainwater ponds for stags to wallow in during the fall rut, niches and covered areas where hinds can birth fawns in the summer, and zones where exhaust heat from domestic life are harnessed in support of pregnant hinds during winter months (see fig. 4.42).

Lastly, the ryokan experience should be beneficial for both the deer and the human guests. Human guests should have close views of intimate deer behaviours and rituals that would otherwise not be available outside of the ryokan. Architecturally, this translates to well-protected, but glazed or otherwise transparent boundaries between human sleeping quarters and deer sleeping quarters (see fig. 4.41). This already is a feature of most ryokans and therefore reinforces the potential of ryokan grounds as a place for design intervention.



FAMILIAL STRUCTURE:
Male harems with up to one buck per twelve hinds.

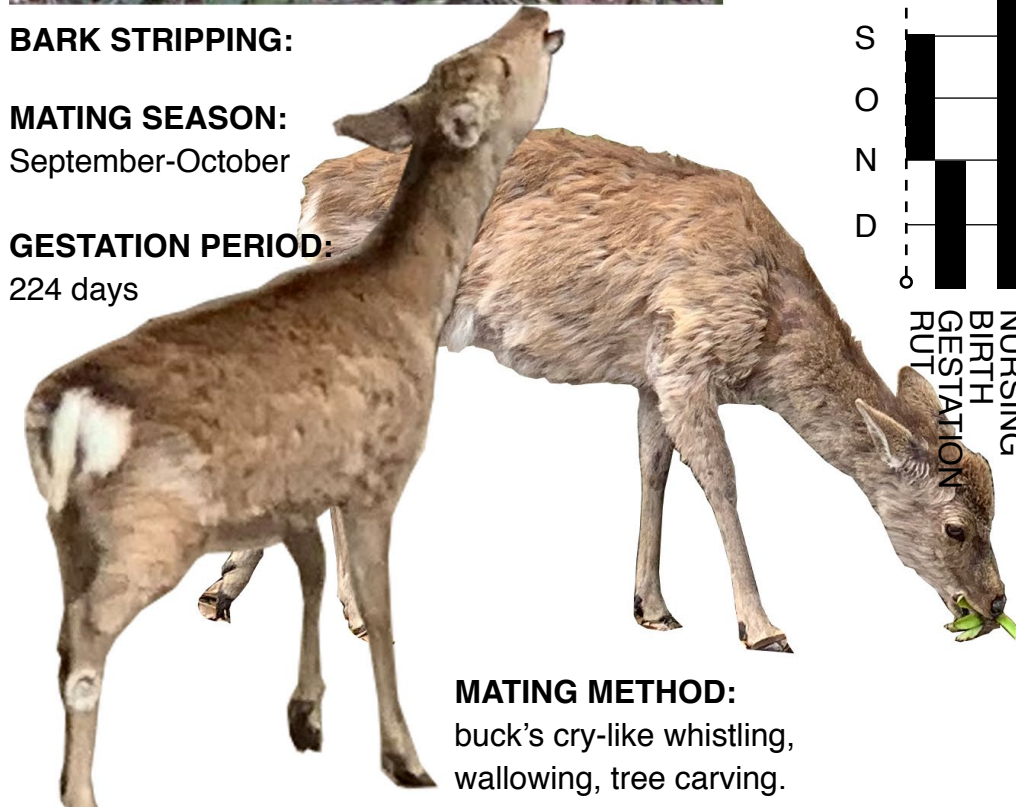
AGILITY:
excellent sprinters, jumpers, and swimmers.

BOWING:
originally an assertion of dominance between bucks, now adapted as a beg for food.

BARK STRIPPING:

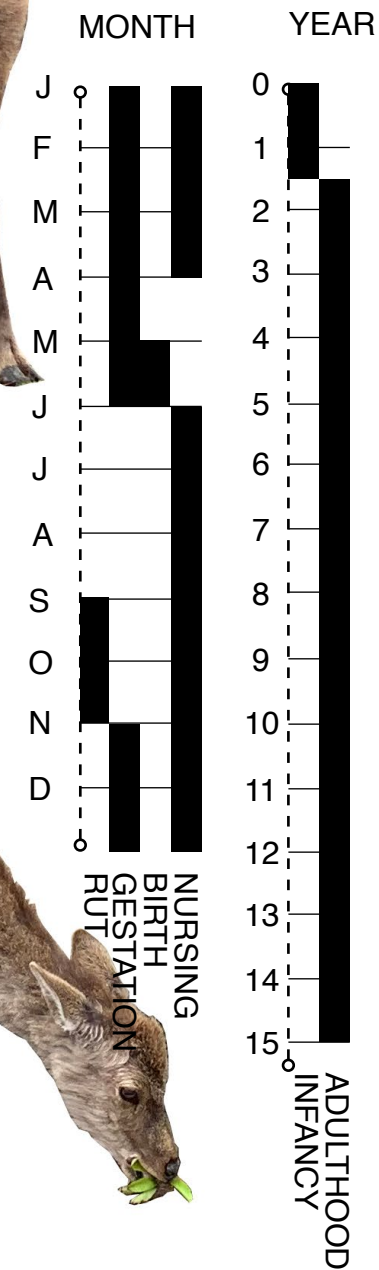
MATING SEASON:
September-October

GESTATION PERIOD:
224 days

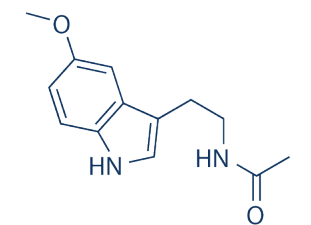


MATING METHOD:
buck's cry-like whistling, wallowing, tree carving.

Fig 4.39 Analysis of Sika deer behaviours and life cycle.



SLEEP CYCLE:
generally, sleep cycle has adapted to human activity



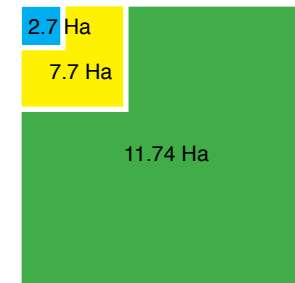
MELATONIN:
inhibition of gonad activity, development of biological rhythms, and adjustment of the circadian rhythm; lutenizing hormone and follicle stimulating hormone for antler growth and shedding



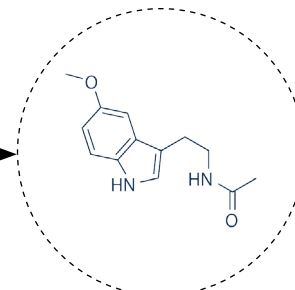
WALLOWING:
originally an assertion of dominance between bucks, now adapted as a beg for food.

ALLOGROOMING:
social and self-grooming

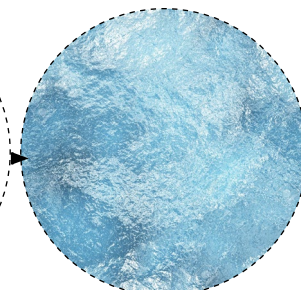
GUESTHOUSE ENTRANCE



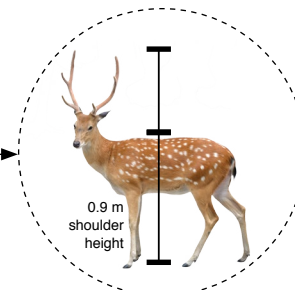
Territorial
 Non-territorial male
 Territorial male, min.
 Territorial male, max.



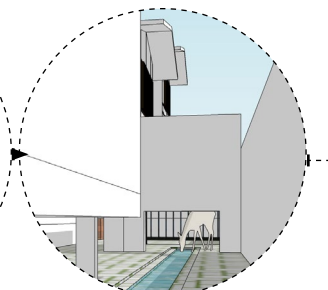
Sensory
 Primary: scent / olfactory



Material palette
 pheromone/scent carrier
 to quickly identify territorial
 availability of space



Deer-gonomics
 0.9m x 1.2m opening



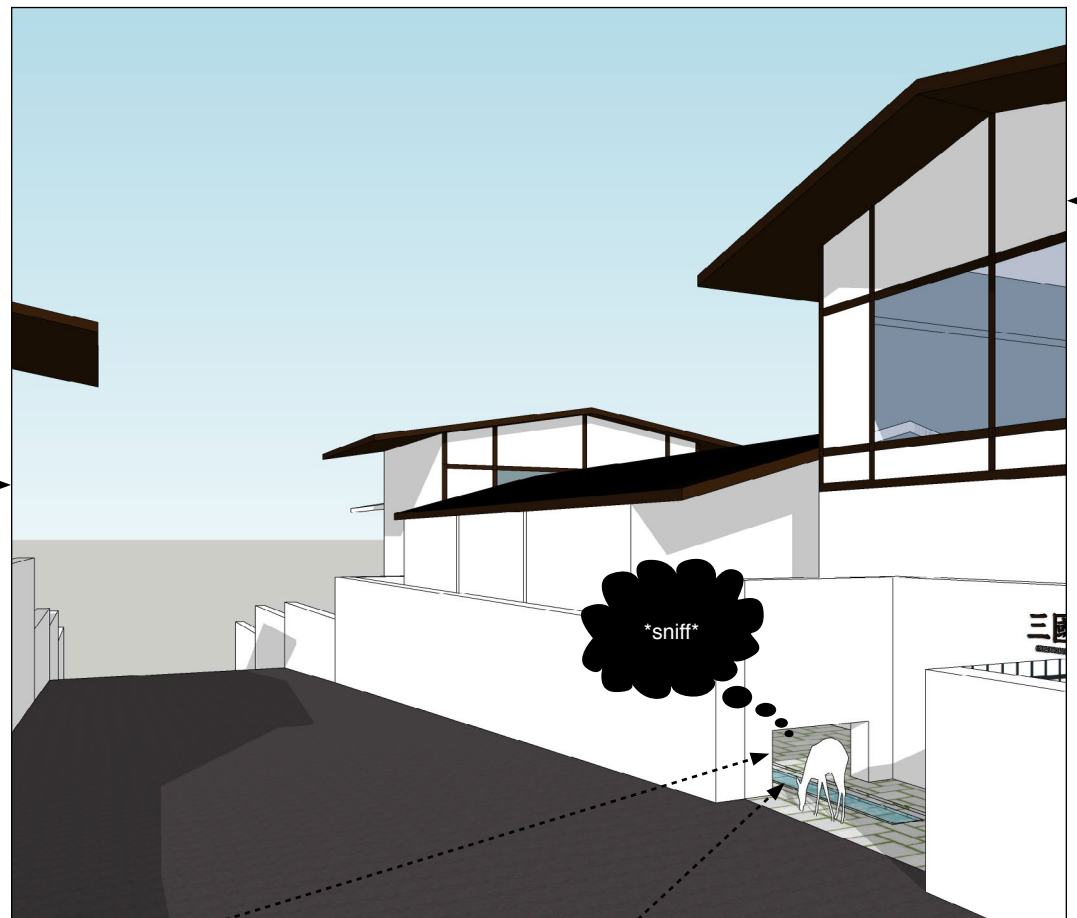
Deer-specific aperture

EXISTING



Deer experience is not consider in existing guesthouse design. Some deer will occasionally stumble across and attempt to enter guesthouse grounds.

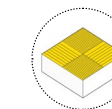
PROPOSED



Deer-specific aperture is created. This new entry allows deer to approach the grounds of their own volition with compromising the safety for human occupants.

New waterway leads to exterior of guesthouse, clearly denoting the availability of the grounds via scent.

(What would a guesthouse for deer look like?)



Keyword: **MARKER**

Fig 4.40 Analysis of existing guesthouse entrance vs proposed guesthouse entrance.

GUESTHOUSE INTERIOR - COURTYARD GARDEN INTERFACE

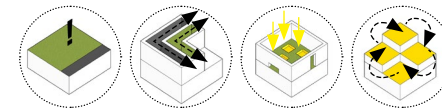


The existing courtyard garden, while aesthetically pleasing, serves no function for existing guesthouse staff and visitors.



The courtyard garden becomes temporal space for rutting, matings, and birthing deer. The experience of the guesthouse visitors are heightened, while the deer are offered protection during the vulnerable periods of their biological cycle.

The visitor experience is varied base on the season of visit, creating interest to revisit and follow-up on the deer. The observations are intimate and there is emotional investment.



Keyword:
OBSERVE

Fig 4.41 Analysis of existing guesthouse - garden interface versus proposed guesthouse - garden interface.

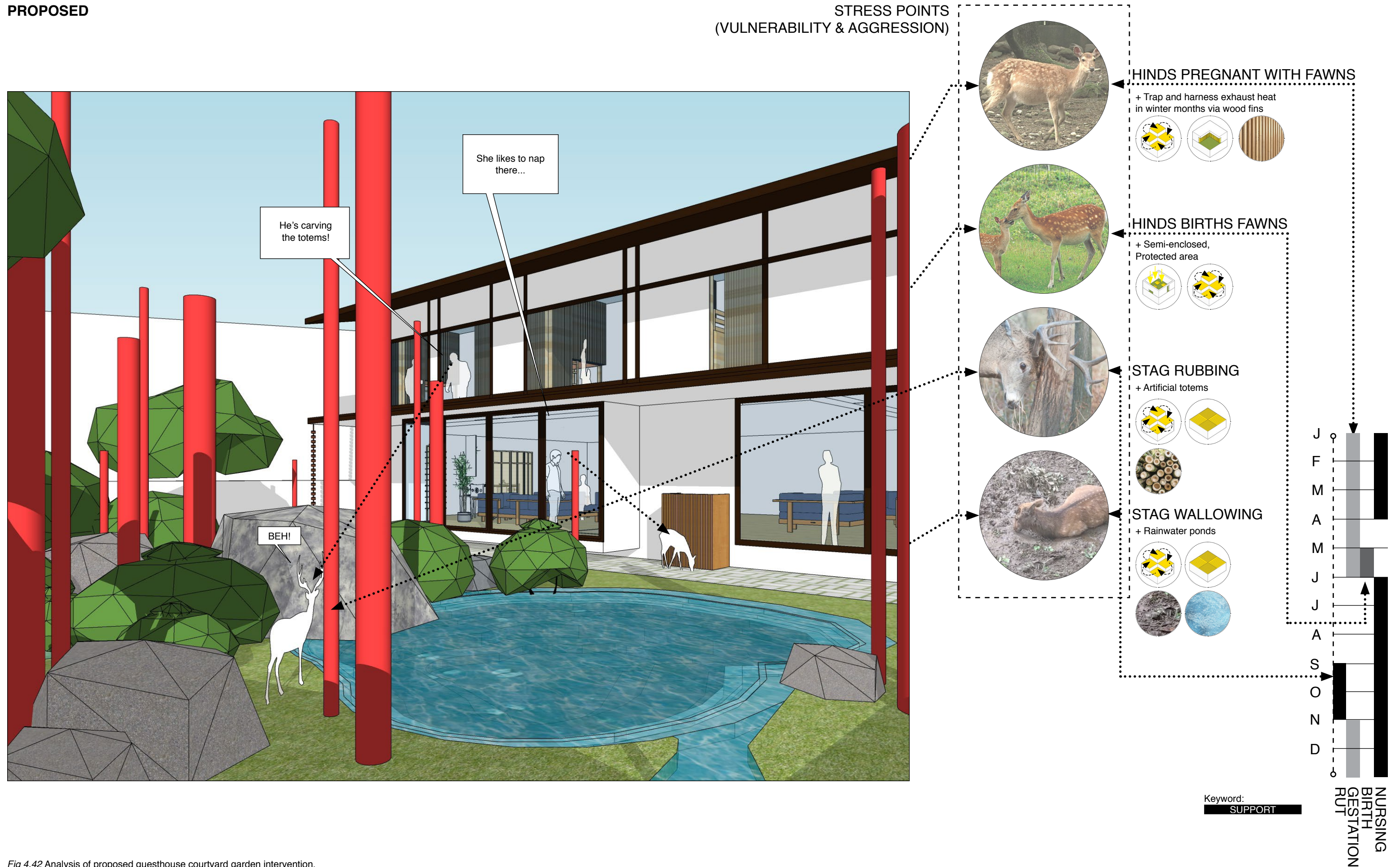


Fig 4.42 Analysis of proposed guesthouse courtyard garden intervention.



Fig 4.43 Visualisation of proposed guesthouse intervention.

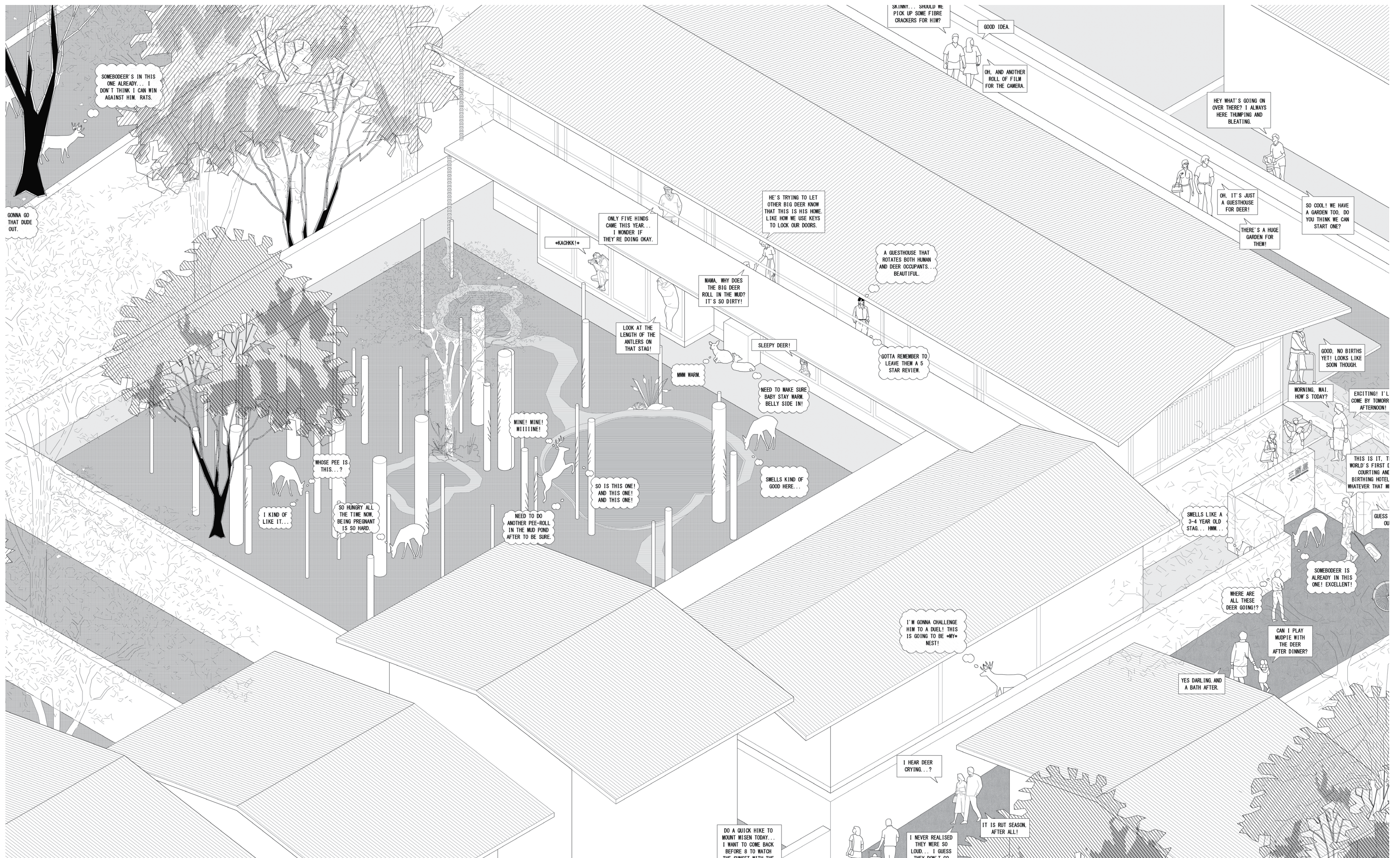
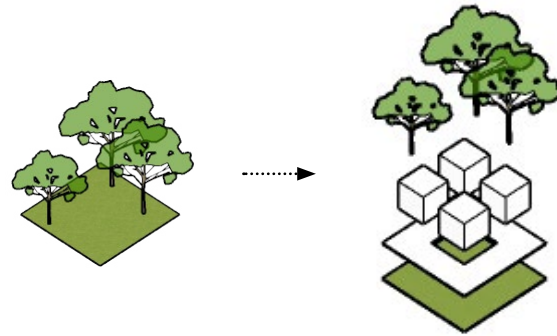


Fig 4.44 Animated axonometric of proposed guesthouse.



NATURE PARK / CAMPGROUNDS.



34°17'27.8"N 132°20'27.4"E

Fig 4.45 Parti diagram for proposed transformation.

CONTEXT:

Tsutsumigaura Nature Park and Campgrounds, located at the northeastern tip of Miyajima island, is a popular vacation and nature retreat destination for Japanese students and families within the Chugoku region and larger Honshu island area. The densely forested park is about an hour trek by foot from the ferry terminal, and is generally quiet with low vehicular disturbance. Backed by expansive mountains and fronted by vast open plains, visitors arriving for the first time are often confronted by an unsettling feeling of insignificance at the foot of the sublime.

OBSERVATIONS:

During my trek to Tsutsumigaura, as I emerged out of the busy ferry terminal, market streets, and winding road into the forest canopies, I found myself anxious with both excitement and paranoia. This was clear a place ordered by nature, only lightly touched upon by humans. Between the expansive plains and maze of hundred-year old tree trunks, I felt completely vulnerable. It is within this mostly-wild park that the sika deer conglomerate and run freely. Here, against the silent backdrop of the mountains and trees, the deer seem quicker, more clever, and more wild (see fig. 4.46, 4.47, 4.48).

Here, the conflict does not predominantly arise from interspecies interaction, unlike in the town centre. There is enough grazing land for the deer's sustenance, and the lack of vehicular traffic provides the deer with ample space to gallop safely. From these observations, it seemed that the primary concern of this site, similar to that of the port, was one of human perception. Whereas at the port, visitors were overwhelmed by their excitement at the sudden sight of the deer in a highly formalized urban setting, the sublime qualities of Tsutsumigaura brings out unsettling feelings of the dangerous, unknown wild.

OPPORTUNITIES:

Since the primary concern of this site was one of human perception of safety, the proposal needs to provide human visitors with specific sheltered areas where they can be assured of their bodily and property security.



Fig 4.46 Existing deer use of space.



Fig 4.47 Existing deer use of space.

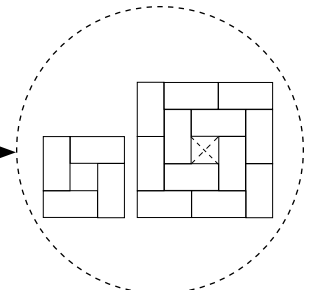


Fig 4.48 Existing deer use of space.

CAMPGROUNDS POD

A modular, self-assembled platform and pod system, based on the Japanese tatami proportions, is proposed. Each pod sleeps up to two people, and each platform can carry up to four pods. This clear delineation of human space within the wild realm helps to clearly outline acceptable human behaviours within and outside of the human sphere. Localized assured safety encourages the larger matrix of natural parkland to be treated with mindfulness and care. When not occupied by human visitors (i.e. during

shoulder season and off season), the camping platforms and pods can be used by deer for support during difficult weather and stages of vulnerability.

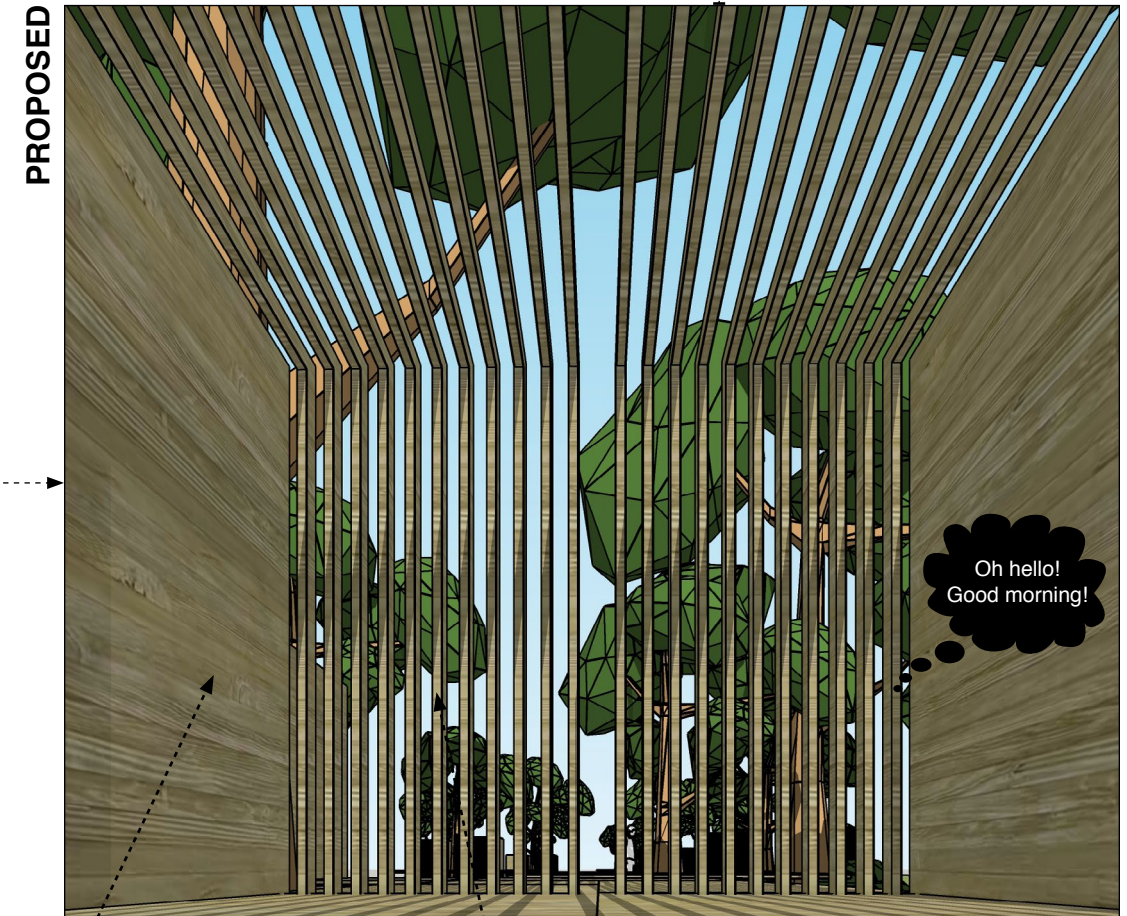


Tatami/fusuma-based proportions and scaling configurations; modular and easy self-assembly



In the less urbanized environment of the campsite, human visitors are frequently outnumbered by deer inhabitants, who also happen to be quite dextrous and clever in opening tents and bags.

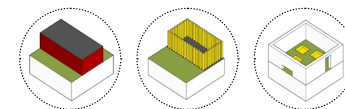
Human campers are overwhelmed and fearful of the deer.



Elevated pods carve out pockets of human space within the deer territory. Safe spaces encourage human visitors to respect the larger scope of the park as deer habitat.

Simple, self-assembled pods fit two standard sleeping bags and allows for porous view out to the park.

Semi-porous protected retreat allows campers to curb fear and annoyance, and freely appreciate the park and deer presence.



Keyword: **SAFE SPACE**

Fig 4.49 Analysis of existing campgrounds versus proposed campgrounds.

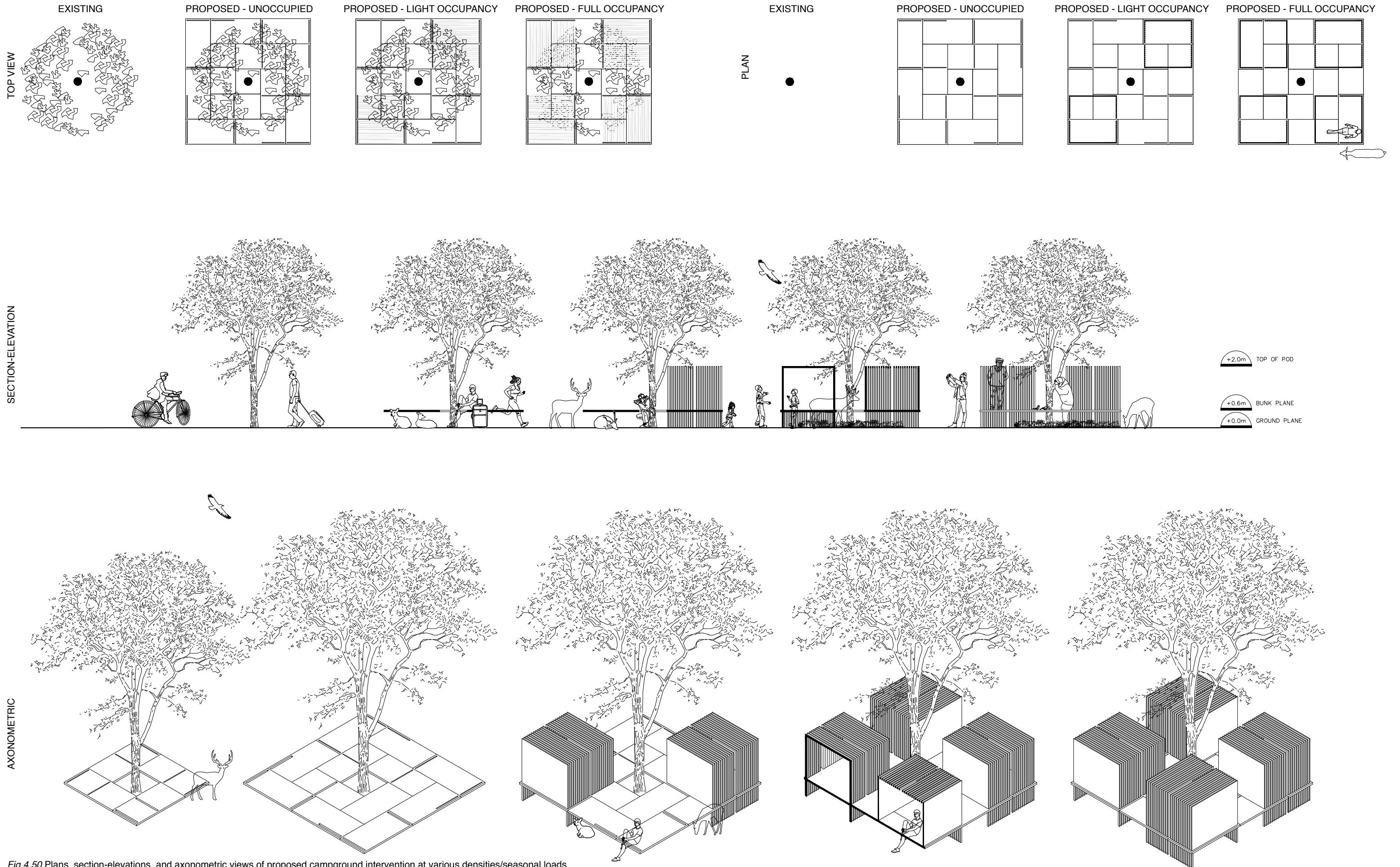


Fig 4.50 Plans, section-elevations, and axonometric views of proposed campground intervention at various densities/seasonal loads.



Fig 4.51 Daytime visualisation of proposed campground intervention.

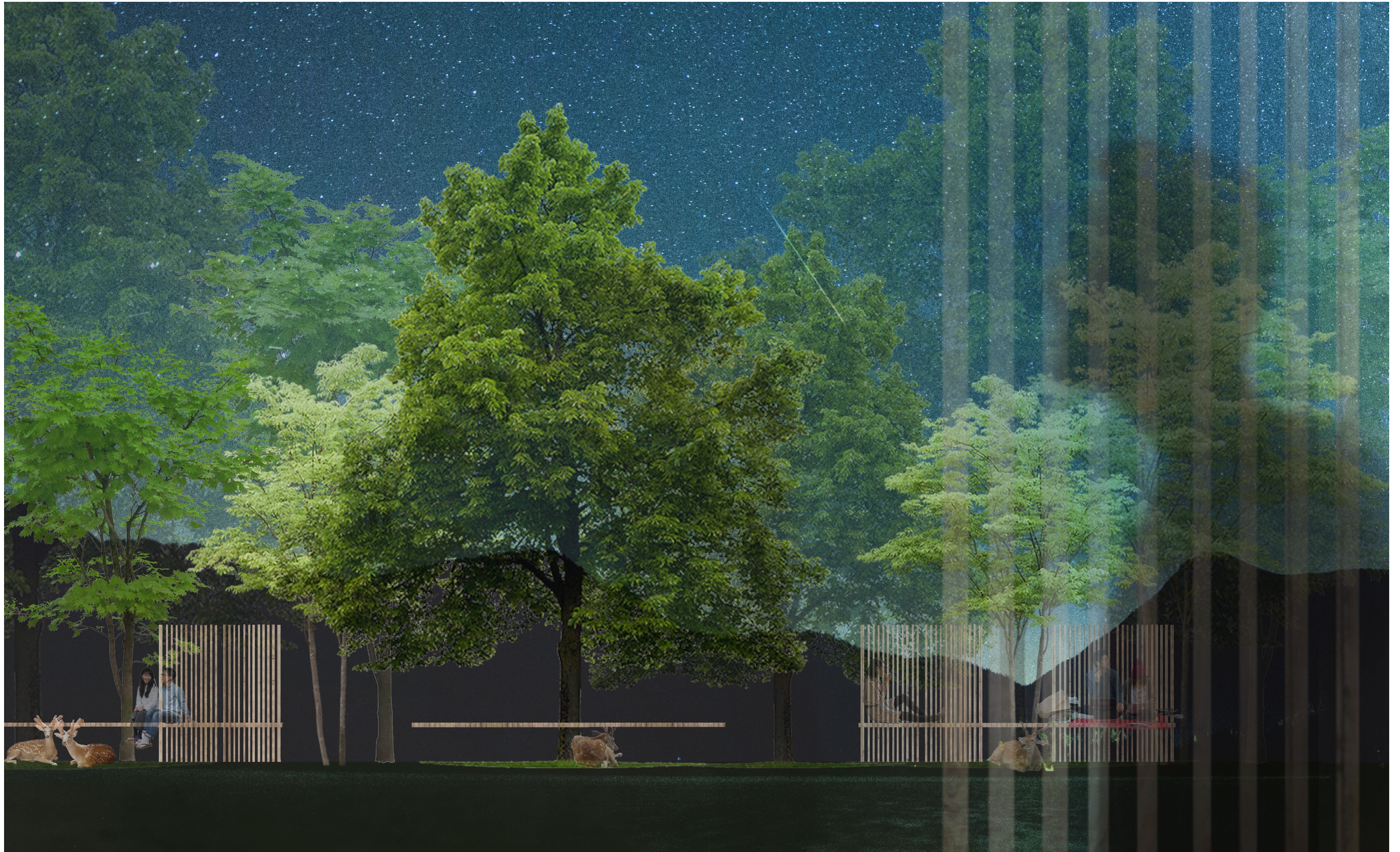


Fig 4.52 Nighttime visualisation of proposed campground intervention.

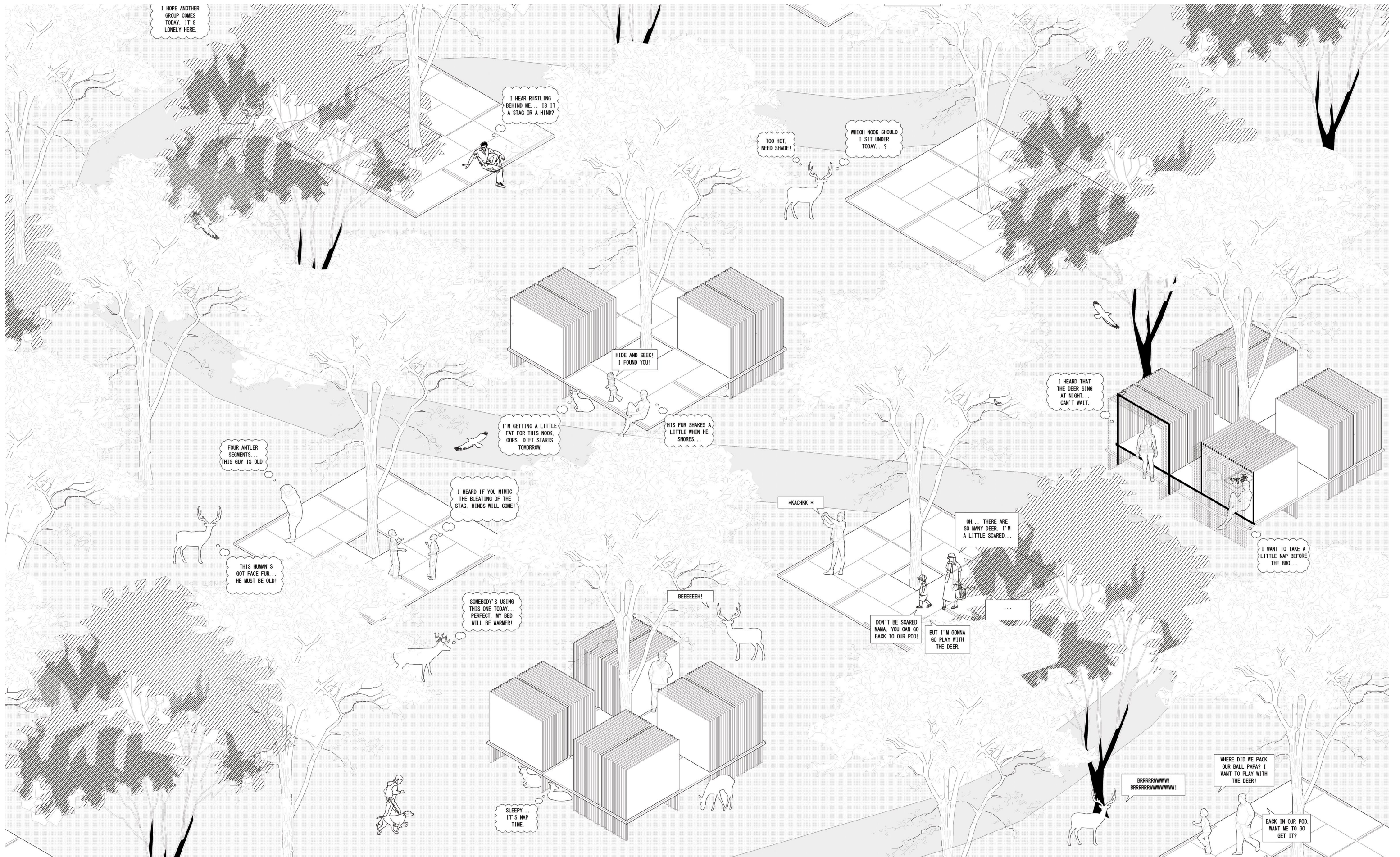
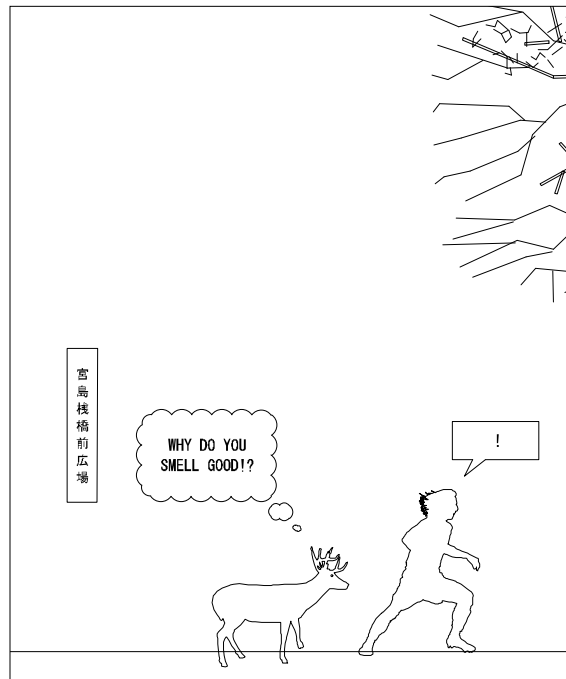


Fig 4.53 Animated axonometric of proposed campgrounds intervention.

PART FIVE:
EVALUATIONS AND APPLICATIONS



“The real voyage of discovery consists not in seeking new landscapes, but in having new eyes.”¹

—Marcel Proust

¹ Marcel Proust et al., *In Search of Lost Time: the Captive* (New York: Modern Library, 1999).

This thesis tested various elements of the built form of four particular program typologies, in order to reimagine the human-animal relationship in Miyajima, Japan. These explorations and hypotheses are specific to Miyajima, with its unique cultural, spiritual, political, and geographic history in addition to its rapid rise as a tourism hotspot.

I was very fortunate to be able to visit Miyajima in the spring of 2019 to experience and document the Japanese Sika deer. Luckily this coincided with the tail end of Japan’s cherry blossom season and the Golden Week holidays, where increased tourism allowed me to observe the human-deer frictions in their most intense state. Were it possible, I would visit again during the winter (when environmental stresses might cause the deer and the people to behave and interact differently), and tourism slow seasons (when the deer and few human inhabitants may live perfectly fine together). Somehow I think the ideas of expanding and shrinking territories through *time*, while present (especially in the ryokan iteration), did not as big a part as I had hoped in this thesis — and I suspect it was influenced by the limited duration of my site experience.

Had I the luxury of more time and longer stays, I would have also liked to test out some of the proposals in real life, in Miyajima. Certainly it would be impossible to re-construct the existing port or crossing, but the campground pod iteration (and perhaps even some temporary landscape work in the ryokan courtyard iteration) could feasibly be tested for real life reactions. How might the feelings and behaviours of the humans and the deer change with regards to the built form of the island, and towards each other? Could some of these revised human-deer boundaries be too perverse to be acceptable by the inhabitants? I’m interested in testing out the different sets of revised interspecies boundaries, even as temporary, scaled experiments which are excerpts of the larger design proposal.

Despite its unique set of constraints and opportunities, there are lessons to be learnt from these explorations of shared territories, which can be applied to territories of conflict elsewhere. This was a project motivated by the desire for understanding of and empathy for the *other*, and deeper connections between those who inhabit the same space. In particular, humans

have benefited from their control and management of non-human animals throughout history, with this behaviour largely normalized by the human exceptionalism narrative of conscience. Perhaps it is time we rethink our relationship with the animal, and make peace with the beings with whom we share a common home.

In the same way that this thesis pushes for understanding between species, the lessons learnt from Miyajima can also be applied between different cultures and between different demographics, such as in politically conflicted territories, or to do away with urban hostile architecture. *How do we become good neighbours? How can we understand one another, support one another, and engage in meaningful ways?*

In a world that is increasingly divisive, may these explorations of shared territories in Miyajima give us a place to start healing the rift.

BIBLIOGRAPHY

ON HUMAN-ANIMAL RELATIONSHIPS

Cronon, William. *Uncommon Ground: Rethinking the Human Place in Nature*. New York, NY: W.W. Norton, 1996.

Foucault, Michel. *The Order of Things: an Archaeology of the Human Sciences*. London: Routledge, 2010.

Gissen, David. *Subnature Architectures Other Environments*. New York: Princeton Architectural Press, 2009.

Graham, James, ed. *Climates: Architecture and the Planetary Imaginary*. New York: Lars Muller Publishers, 2016.

Heidegger, Martin, and William Lovitt. *The Question Concerning Technology, and Other Essays*. New York: Harper Perennial, 2013.

Kellert, Stephen R. "American Attitudes Toward and Knowledge of Animals: An Update." *Advances in Animal Welfare Science* 1984, 1985, 177–213. https://doi.org/10.1007/978-94-009-4998-0_11.

Lawrence, Elizabeth A. "Human Perceptions of Animals and Animal Awareness: The Cultural Dimension." *Advances in Animal Welfare Science* 1985, 1986, 285–95. https://doi.org/10.1007/978-94-009-4247-9_16.

Moore, Jason, ed. *Anthropocene or Capitalocene: Nature, History, and the Crisis of Capitalism*. Oakland : CA: PM Press, 2016.

Moore, Jason W. *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. London: Verso, 2015.

Szűcs, E., R. Geers, T. Jezierski, E. N. Sossidou, and D. M. Broom. "Animal Welfare in Different Human Cultures, Traditions and Religious Faiths." *Asian-Australasian Journal of Animal Sciences* 25, no. 11 (2012): 1499–1506. <https://doi.org/10.5713/ajas.2012.r.02>.

The Superior Human? Produced by Dr Jenia Meng. Directed by Samuel McAnallen. Performed by Dr Bernard Rollin, Gary Yourofsky, Dr Richard Ryder, Dr Steven Best. Narrated by Dr Nick Gylaw. Ultraventus, 2012. DVD. April 1, 2012. Accessed November 8, 2018. <https://www.youtube.com/watch?v=mqT82oGeax0>.

Tsing, Anna. "A History of Weediness." In *Friction: An Ethnography of Global Connection*, 171-203. Princeton, NJ: Princeton University Press, 2005.

ON ANIMAL GEOGRAPHIES

Auguet, Roland. "Cruelty and Civilization," December 2012. <https://doi.org/10.4324/9780203389072>.

Buller, Henry. "Animal Geographies I." *Progress in Human Geography* 38, no. 2 (2013): 308-18. doi:10.1177/0309132513479295.

Buller, Henry. "Animal Geographies I." *Progress in Human Geography* 38, no. 2 (2013): 308–18. <https://doi.org/10.1177/0309132513479295>.

Carter, Bob. *Human and Other Animals: Critical Perspectives*. Basingstoke: Palgrave Macmillan, 2011.

Clutton-Brock, Juliet. "Origins of the Dog: Domestication and Early History." In *The Domestic Dog: Its Evolution, Behaviour and Interactions with People*, edited by James Serpell, 10–11. Cambridge: Cambridge University Press, 2015.

Collard, Rosemary-Claire, and Kathryn Gillespie, eds. *Critical Animal Geographies: Politics, Intersections, and Hierarchies in a Multispecies World*. Abingdon, Oxon: Routledge, 2015.

Gunawan, Sarah. *Synanthropic Suburbia*. Master's thesis, University of Waterloo, 2015.

Guo, Emily. *No Man's Land: The American Military Landscape as the New*

American Park. Master's thesis, University of Waterloo, 2018.

Hovorka, Alice J. "Animal Geographies I: Globalizing and Decolonizing." *Progress in Human Geography* 41, no. 3 (2017): 382-94. doi:10.1177/0309132516646291.

Jacobs, Andrew. "Chirps and Cheers: China's Crickets Clash." *New York Times*. November 5, 2011. <https://www.nytimes.com/2011/11/06/world/asia/chirps-and-cheers-chinas-crickets-clash-and-bets-are-made.html>.

Larson, Greger, and Dorian Q. Fuller. "The Evolution of Animal Domestication." *Annual Review of Ecology, Evolution, and Systematics* 45, no. 1 (2014): 115-36. <https://doi.org/10.1146/annurev-ecolsys-110512-135813>.

Patter, Lauren E. Van, and Alice J. Hovorka. "'Of Place' or 'of People': Exploring the Animal Spaces and Beastly Places of Feral Cats in Southern Ontario." *Social & Cultural Geography* 19, no. 2 (April 2017): 275-95. <https://doi.org/10.1080/14649365.2016.1275754>.

Philo, Chris. *Animal Spaces, Beastly Places: New Geographies of Human-Animal Relations*. London: Routledge, 2007.

Regan, Tom, and Jeffery Moussaieff. Masson. "Foreword." In *Empty Cages: Facing the Challenge of Animal Rights*. Blue Ridge Summit: Rowman & Littlefield Publishers, 2005.

Springer, Anna-Sophie, Etienne Turpin, Kirsten Einfeldt, and Daniela Wolf. *Land & Animal & Nonanimal*. Berlin: Haus Der Kulturen Der Welt, 2015.

Sundberg, Juanita. "Decolonizing Posthumanist Geographies." *Cultural Geographies* 21, no. 1 (2013): 33-47. <https://doi.org/10.1177/1474474013486067>.

Dr. Tony Weis. "Animal Geographies," (Syllabus, Western University, London, 2017).

Hovorka, Alice J. "Animal Geographies II: Hybridizing." *Progress in Human Geography* 42, no. 3 (2017): 453-62. doi:10.1177/0309132517699924.

Van Patter, Lauren E., and Alice J. Hovorka. "'Of Place' or 'Of People': Exploring the Animal Spaces and Beastly Places of Feral Cats in Southern Ontario." *Social & Cultural Geography* 19, no. 2 (2018): 275-95. Accessed November 7, 2018. doi:10.1080/14649365.2016.1275754.

Wolch, Jennifer. "Anima Urbis." *Progress in Human Geography* 26, no. 6 (2002): 721-42. Accessed November 3, 2018. doi:10.1191/0309132502ph400oa.

Zeder, Melinda A. "Core Questions in Domestication Research." *Proceedings of the National Academy of Sciences* 112, no. 11 (2015): 3191-98. <https://doi.org/10.1073/pnas.1501711112>.

ON POSTHUMAN URBANISM

Gomez-Luque, Mariano, and Ghazal Jafari, eds. *New Geographies 09: Post-Human*, 2018.

Johnson, Nathanael. *Unseen City: the Majesty of Pigeons, the Discreet Charm of Snails & Other Wonders of the Urban Wilderness*. New York: Rodale, 2016.

Haraway, Donna Jeanne. *Staying with the Trouble: Making Kin in the Chthulucene*. Durham: Duke University Press, 2016.

Sundberg, Juanita. "Decolonizing Posthumanist Geographies." *Cultural Geographies* 21, no. 1 (2013): 33-47. doi:10.1177/1474474013486067.

ON MIYAJIMA AND SIKA DEER

"1 Day Course: Visit the Main Spots in Miyajima." MIYAJIMA OFFICIAL TOURISM WEBSITE, n.d. <http://visit-miyajima-japan.com/en/idees-sejours/formule-1-journee.html>.

Armer, Simone. "The Sacred, Starving Deer of Miyajima." *Lost in the Lens*. June 22, 2016. Accessed September 25, 2018. <http://www.simonearmer.com>.

com/the-sacred-starving-deer-of-miyajima/.

Chavez, Amy. "Oh Deer, What Can the Matter Be?" *The Japan Times*, October 21, 2006. Accessed September 17, 2018. <https://www.japantimes.co.jp/community/2006/10/21/our-lives/oh-deer-what-can-the-matter-be/#.W6BKli3Mwk8>.

"Deer & Raccoon Dogs." World Heritage Miyajima Island. Miyajima Tourist Association, n.d. http://www.miyajima.or.jp/english/nature/nature_animal.html.

"Deer (Overview) Senses - Vision." Wildlife Online, n.d. <https://www.wildlifeonline.me.uk/animals/article/deer-overview-senses-vision>.

Fifield, Anna. "Japan's Famous Nara Deer Are Being Culled." *Washington Post*, August 1, 2017. Accessed September 17, 2018. https://www.washingtonpost.com/news/worldviews/wp/2017/08/01/oh-deer-naras-famous-four-legged-creatures-are-being-culled/?noredirect=on&utm_term=.aafa-f27a395e.

Hays, Jeffrey. "DEER, SEROW AND WILD BOARS IN JAPAN: CHARACTERISTICS, BEHAVIOR AND ATTACKS." Facts and Details. January 2013. Accessed September 26, 2018. <http://factsanddetails.com/japan/cat26/sub164/item889.html>.

"History of Miyajima." Itsukushima Shrine | Sightseeing Spots | Miyajima Tourist Association. Accessed September 25, 2018. <http://www.miyajima.or.jp/english/history/miyajimahistory.html>

I GOT ATTACKED BY DEER (Miyajima Island). Performed by Lost LeBlanc. 2015. Accessed October 16, 2018. <https://www.youtube.com/watch?v=RovYLM-UrtM&pbjreload=10>.

Inoue, Yasuji. *Kyodo Risshi No Motoi* (Instruction in the Fundamentals of Success). Late 1880s. Asia, British Museum, Not on Display. Accessed October 12, 2018. http://www.britishmuseum.org/research/collection_

online/collection_object_details.aspx?objectId=3071823&partId=1

McCullough, Dale R., Seiki Takatsuki, and Kaji Kōichi. *Sika Deer: Biology and Management of Native and Introduced Populations*. Tokyo: Springer, 2009.

"Messengers of the Gods – Deer of Nara." September 15, 2019. Soramitsu Project, September 15, 2019.

"Ryokan." Japan Guide, n.d. <https://www.japan-guide.com/e/e2029.html>.

Shamsian, Jacob. "Why Hundreds of Deer Live Peacefully alongside Humans on an Island in Japan." *INSIDER*. July 20, 2016. Accessed September 25, 2018. <https://www.thisinsider.com/japanese-deer-island-deer-miyajima-nara-park-shinto-2016-7>.

Takatsuki, Seiki. "Effects of Sika Deer on Vegetation in Japan: A Review." *Biological Conservation* 142, no. 9 (2009): 1922–29. <https://doi.org/10.1016/j.biocon.2009.02.011>.

Usui, Rie, and Carolin Funck. "Analysing Food-derived Interactions between Tourists and Sika Deer (*Cervus Nippon*) at Miyajima Island in Hiroshima, Japan: Implications for the Physical Health of Deer in an Anthropogenic Environment." *Journal of Ecotourism* 17, no. 1 (2017): 67-78. doi:10.1080/14724049.2017.1421641.

Usui, Rie, and Carolin Funck. "Not Quite Wild, But Not Domesticated Either: Contradicting Management Decisions and Free-Ranging Sika Deer (*Cervus Nippon*) at Two Tourism Sites in Japan." In *Wildlife Tourism, Environmental Learning and Ethical Encounters Ecological and Conservation Aspects*, edited by Ismar Borges De Lima and Ronda J. Green, 247-60. Cham: Springer International Publishing, 2018.

Utagawa, Kokunimasa. *Ladies and Deer*, Miyajima. 1892. Accessed October 12, 2018. <http://www.jaodb.com/db/ItemDetail.asp?item=35516>

United Nations. United Nations Educational, Scientific and Cultural Organization. Bureau of The World Heritage Committee. Reports on the State of Conservation of Properties Inscribed on the World Heritage List. 2001.

Ohtaishi, N., K. Kaji, and T. Mano. Proceedings of the Deer and Bear Forum, Hokkaido 1990: Coexistence of Large Mammals and Humans, 1 September, Sapporo, Japan, Hokkaido Forum of the Symposium Wildlife Conservation INTECOL 90: The Management of the Deer and Bear in the World and the Course of Future Management of Sika Deer and Brown Bear in Hokkaido, Japan. Sapporo: Wildlife Information Center, 1990.

El Nasser, Haya. "Fastest-Growing Urban Parks Are for the Dogs." *USA Today*, November 8, 2011. <https://usatoday30.usatoday.com/news/nation/story/2011-12-07/dog-parks/51715340/1?csp=34news>.

ON OUTLOOKS

Proust, Marcel, C. K. Scott-Moncrieff, Terence Kilmartin, and D. J. Enright. *In Search of Lost Time: the Captive*. New York: Modern Library, 1999.