

# Wilder Harrier Dog Kibble Exploits Invasive Carp Catch

Part of the ['Opportunity Blossoms'](#) series on real economy investments in nature

Organisms introduced into places outside their natural range are notoriously challenging to manage. Invasive alien species cost the global economy at least \$423 billion each year and contribute wholly or in part to 60% of known species extinctions. Over 200 new alien species introductions are recorded each year.

Canadian startup Wilder Harrier produces premium pet food from sustainable protein sources, including farmed insects and invasive fish. Its line of 'Sustainable Fish formula' dog kibble is made from silver carp, a species of non-native fish which has spread throughout the US, getting within 50 miles of the Great Lakes on the US-Canada border. The carp consume plankton so rapidly that they outcompete native juveniles, reducing the populations of multiple commercial fish species and worsening water quality.

Unlocking value from the management of invasive alien species can help solve a costly global problem and deliver new revenue streams.

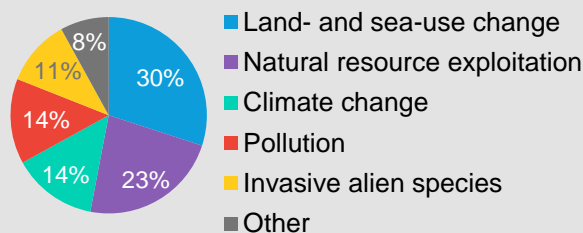
## The nature-friendly product

Founded in 2015, Wilder Harrier produces dog food primarily for the US and Canadian retail markets. The certified B-corporation uses non-standard proteins to reduce the environmental footprint of its products. In 2020, the company developed a line of pet food made from silver carp, a species native to China and eastern Siberia but now rampant in parts of the Mississippi River and its tributaries. The products have two benefits beyond conventional dog food: they contain omega-3 fatty acids that can improve canine skin and coat condition, and the fish harvest helps slow the encroachment of silver carp into Canadian waters.

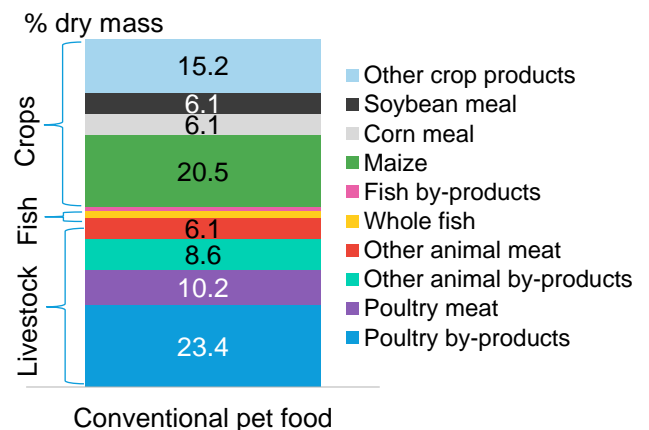
By comparison, conventional pet foods are produced using a range of livestock and crops, with fish comprising less than 4% of ingredients. Several of these ingredients have a detrimental impact on nature, putting pressure of land and water resources and releasing nitrogen and phosphorus into waterways.

### Mitigating nature loss

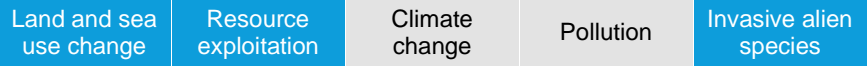
Five drivers account for over 90% of global biodiversity and ecosystem decline. Wilder Harrier's products, containing alternative sources of animal protein, address land- and sea-use change and resource exploitation, though its use of invasive silver carp is particularly novel.



### Ingredients sourced for conventional pet food globally in 2020, by dry mass



Source: BloombergNEF, *Global Environmental Change*, *The Marine Ingredients Organisation*.



Wilder Harrier creatively markets the Sustainable Fish formulas as products it hopes to stop selling. The firm’s marketing director has stated that Wilder Harrier is actively attempting to reduce silver carp populations to prevent the species spreading, and would discontinue the products if invasive populations were eradicated. The company has so far removed around 14,000 silver carp, a tiny share of the total population.

For another product line, the company sources black soldier flies and crickets fed on food waste as the primary ingredients. This substantially cuts its land-use footprint: a kilogram of waste-fed insect protein requires one square meter of land, while the equivalent amount of beef, pork or poultry protein takes between 58% and 96% more. Eliminating livestock from the product’s supply chain also reduces total freshwater consumption and greenhouse gas emissions.

### Nature impact of reducing invasive alien species populations

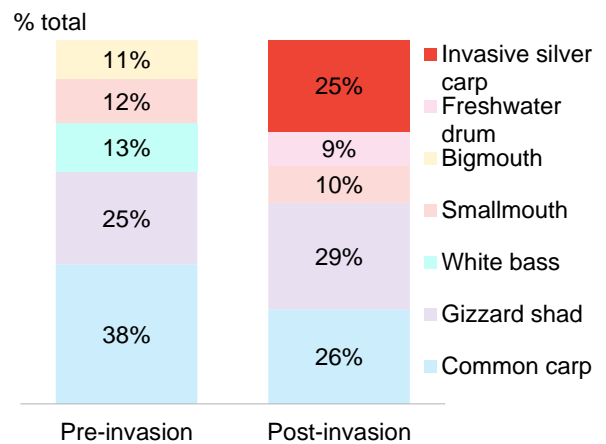
Silver carp are spreading across the US, causing ecological damage to freshwater systems. The fish – native to China and eastern Siberia – were first imported into the US in 1973 for aquaculture and to improve water quality by feeding on phytoplankton. Farmed silver carp escaped into the Mississippi River in the 1990s and have since spread to lakes and rivers across 20 US states. The silver carp population is immense, with one study estimating well over 300,000 specimens in a 130-kilometer (81-mile) stretch of the Illinois River – equating to 2,544 silver carp per river kilometer.

Silver carp have complex and detrimental impacts on the resiliency of freshwater ecosystems. In Illinois, where Wilder Harrier sources silver carp, populations of multiple native fish have fallen since the carp invasion. As these surface filter-feeders consume around 40% of their body weight in plankton each day, they rapidly outcompete other planktivorous species and out-grow predators. In some parts of the Illinois river, invasive carp make up 50% of fish by weight.

Furthermore, dwindling plankton populations increase algal blooms which in turn restricts light penetration to the riverbed. This kills aquatic plants, reducing food availability further and putting pressure on many other species in the freshwater food web.

The Canadian Invasive Species Centre and US National Invasive Species Information Center have programs to reduce US silver carp populations and to prevent the species spreading to Canada.

### Top five most abundant fish species in the Illinois river pre- and post-silver carp invasion



Source: BloombergNEF, West Virginia University. Note: Pre-invasion is the average abundance of the five most common species 1994 -2003. Post-invasion is the average abundance of the five most common species 2004–2021.

Interventions can be effective. Removal efforts have helped reduce carp density in the upper Illinois River by up to 40%, and populations of native species have been observed to rebound following the eradication of invasive carp.

### Financial performance

Wilder Harrier raised at least \$3.2 million in seed funding before entering an accelerator run by US retail giant Target in 2022. In May 2023, the firm stated it had sold over 10,000 two- and five-kilogram bags of dog food made from silver carp, estimated to generate approximately C\$400,000 in revenue. The Sustainable Fish formula is positioned as a premium product line, retailing for C\$69.99 for a five-kilogram bag of kibble

(\$51 per 11lb bag). Wilder Harrier products are sold in the US, Canada and South Korea.

In early 2024, the company was acquired for an undisclosed amount by Impact Pet Products Inc., which owns another Canadian sustainable pet-food startup. The company has not disclosed further sales or financial information since the acquisition.

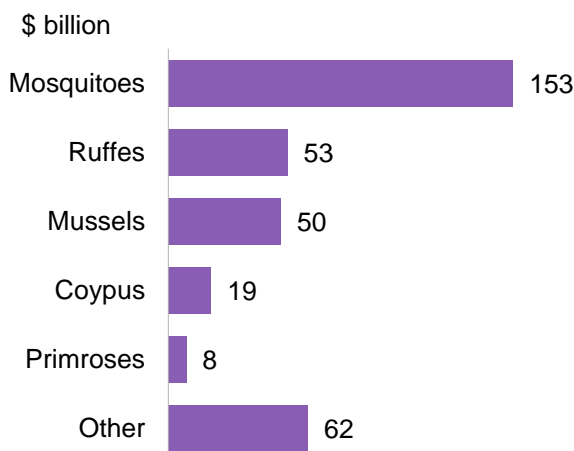
## Other opportunities from invasive species

Utilizing or countering invasive species presents an opportunity for companies sourcing animal products to expand their portfolios while benefiting native biodiversity. Wilder Harrier and competing pet-food brand Chippin diversified their supply chains by incorporating silver carp into products, positively impacting river ecosystems in sourcing regions.

Beyond fish, one biotech firm, Oxitec, has launched commercial solutions to manage malaria and dengue fever carried by invasive mosquitoes.

More than a third of the globally recorded cost of managing invasive alien species involve mosquitoes. This includes the costs of treating disease, deploying mosquito nets and other management strategies, and is likely a gross under-estimate, given only documented costs were included in the study.

## Reported costs of aquatic invasive alien species globally by genus between 1971 and 2021



Source: BloombergNEF, *Science of The Total Environment*.

Note: Genus is the taxonomic rank above species. Ruffes are a fish genus and coypus are an aquatic rodent.

The opportunities for biotechnology companies to reduce insect numbers through genetic engineering will increase as rising temperatures and humidity in temperate zones such as Southern Europe mean invasive disease-carrying mosquitos can establish populations more easily.

## Notable companies utilizing invasive alien species

Company	Description	Financial gain
<u>Oxitec</u>	A UK-headquartered biotechnology company genetically engineering male mosquitoes to reduce populations and limit the spread of disease.	Raised <u>\$26.4 million</u> , including <u>\$18 million</u> from the Bill and Melinda Gates Foundation.
<u>Chippin</u>	A US-based dog food brand also using invasive silver carp and crickets as protein sources and marketed as beneficial for pet allergies.	Raised <u>\$550,000</u> as of last funding round in August 2023.
<u>Inversa</u>	Fashion retailer based in the US creating leather apparel from invasive species including silver carp, lionfish and pythons.	Raised <u>\$250,000</u> as of last funding round in January 2024.

## Analyst take

Harvesting invasive species is a novel way for firms to extract natural resources while benefiting biodiversity. Despite Wilder Harrier's relatively modest scale, it serves as an exemplar for others seeking opportunities in the elimination of harmful flora and fauna.

Judicious impact monitoring and disclosure is imperative, as this business model has in other instances been contorted to maintain the invasive species' populations to protect revenue. Alternative sources of ingredients or revenue are thus required if firms are to remain profitable beyond the short term, as Wilder Harrier's secondary product lines containing sustainable insect protein demonstrate.

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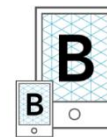
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