

Sean Raspet

July 28 – September 11, 2021

Various Small Fires is pleased to present Sean Raspet's first show at Various Small Fires, and debut solo exhibition in Los Angeles.

Raspet's exhibition features three interrelated projects created over the past several years, consisting of: a selection of plants that have been exposed to radiation and chemical mutagens to produce randomized genetic mutations; a metric ton of CO₂ that has been removed from the atmosphere through direct air capture; and a biological air filtration system consisting of moss that has been genetically engineered to produce floral and patchouli scent molecules.

Through different processes, the works remove carbon from the atmosphere at varying scales and timeframes. Ultimately, the works consist of this sequestered carbon as their primary material.

Together these projects enact and test proposals for near future (and already long overdue) endeavors in the areas of synthetic biodiversity, bioengineering, and geoengineering in response to anthropogenic climate change.

Additional information on individual works is below.

Thanks to: Tim Becker and the Theodore Payne Foundation; Climeworks AG; Henrik Toft Simonsen and Mosspiration Biotech; Joseph Stewart; and Lucy Chinen

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∂ (various species), 2019 and ongoing

The VSF courtyard and main gallery space contain numerous plants of various species that have all been exposed to radiation and/or chemical mutagens to produce randomized mutations in their DNA. Primarily consisting of plants that are native to the biome in which Los Angeles is situated, the selection also includes plant species from biomes further south in the same band of longitude. These more southern varieties are among those that are likely to migrate north as climate conditions warm, and over time may become better adapted to the region than many native species (which, in turn, may themselves migrate further north).

With rapidly changing climate conditions, many plant species have difficulty adapting and face potential extinction. Coupled with this, habitat loss and other factors have led to an unprecedented, ongoing loss of biodiversity throughout the world. By producing increased genetic variation in a plant population on a large scale, plants could stand a higher chance of gaining mutations that would make them more drought-tolerant, flood-tolerant, or resistant to disease and pests, in addition to acquiring other adaptive characteristics.

Related to the concept of "synthetic biodiversity"—using artificial means to create increased genetic diversity—the mutation techniques employed for the project have the potential to

produce more resilient ecosystems by accelerating evolutionary processes of mutation and selection to match the accelerating rate of change in the climate. In the process of introducing this synthetic genetic diversity, additional aesthetic mutations also arise that can be observed in the plants in the exhibition, such as: different flower colors, structures, or petal numbers; larger or smaller sizes; different leaf shapes or sizes; variegations; and different scents, among other mutations.

Raspet has also applied mutation techniques towards crop development on a small scale. In a separate work, *Lathyrus sativus* (known as the grass pea or cow pea) hangs from the skylights in the main gallery and occupies one of the courtyard trellises. The crop, which has origins in Asia and East Africa, is both resilient to changing climate conditions and offers a rich source of protein. However, it also produces small amounts of a toxic amino acid. When consumed in typical, small amounts, the toxin has no effect. When consumed as a large percentage of the diet, however, this amino acid can lead to neurodegenerative disease.

By producing randomized genetic variants of the plant, Raspet hopes to eventually generate a plant wherein the metabolic pathway that produces this amino acid is deactivated. (Current science has been unable to define this pathway, thus ruling out a more targeted genetic editing approach.) Over the coming years Raspet will collect samples of the resulting plants and screen them for the presence of this amino acid with the help of plant biologists at Michigan State University.

Atmospheric Reformulation (CO2 Direct Air Capture), 2019 - 2021

Produced in collaboration with Climeworks AG, a CO2 capture organization based in Switzerland, the work consists of the removal of one ton of carbon dioxide from the atmosphere, taking place at Climeworks AG's facility. This CO2 will eventually be injected underground at a volcanic geological formation in Iceland for permanent mineralization storage. While the work itself is situated within the atmosphere at large, a 5 kilogram canister of CO2 captured from the atmosphere as part of the process is on display in the second gallery for the occasion of this exhibition.

The work is part of an ongoing series, *Atmospheric Reformulations*, begun in 2014 that consists of synthetically produced atmospheres and modulations to the atmosphere at large.

Further information on Climeworks AG is available here:



Filter (Physcomitrium patens: patchoulol synthase-(+), linalool synthase-(+)), 2015 - 2021

Also on the wall in the second gallery, a square, green panel of moss is held within a transparent enclosure. The enclosure together with the moss functions as a biologically-based air filtration system. Produced in partnership with Henrik Toft Simonsen and Mosspiration Biotech, the moss was genetically engineered by introducing genes from the patchouli plant and other flowering plants. As a result, the moss continually emits the molecules patchoulol and linalool to produce an earthy, slightly floral scent reminiscent of a forest floor. Using ambient light, the moss-based filter continually re-fabricates itself and absorbs CO2 from the air while producing oxygen.

Enclosure design and fabrication by Joseph Stewart.

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Sean Raspet (b. 1981, lives and works in New York) has held solo exhibitions including Empty Gallery, Hong Kong; Bridget Donahue, New York; The Artist's Institute, New York; Société, Berlin; Jessica Silverman Gallery, San Francisco. The artist has participated in two person exhibitions at venues including /, San Francisco and Chateau Shatto, Los Angeles. The artist has participated in group exhibitions at venues including the Okayama Art Summit 2019 (directed by Pierre Huyghe); Tai Kwun Contemporary, Hong Kong; Museum of Contemporary Art Busan, KR; Malmö Konstmuseum; MCA Chicago; de Young Museum, San Francisco; Second Vienna Biennale; 9th Berlin Biennale; M Woods Museum, Beijing; Detroit Museum of Contemporary Art; The Swiss Institute, New York; and the Sculpture Center, New York. In 2017, he received the Louis Comfort Tiffany Foundation Award. Raspet's work is in the permanent collections of The Hammer Museum, Los Angeles and the Rubell Family Collection, Miami.