Dream, Design, Deploy

REGENERATE!

GAME MANUAL

Lodgers: Serendipity in the Fly Ranch Wilderness by **Zhicheng Xu and Mengqi Moon He** brings together composting toilets, reclaimed timber waste, traditional thatching methods using local materials, computational script-generated parametric design, and native species shelters to provide an environmental education venue, soil replenishment, sustainable waste management, and habitat enrichment for Fly Ranch. **The top-ranked proposal to the LAGI 2020 Fly Ranch Design Challenge.**

To see more designs from the 2020 Land Art Generator Initiative design challenge for Fly Ranch, go to https://lagi2020flyranch.org

Fly Ranch. The jewel of the Great Basin Desert.

Where the horizon captivates the creative and emboldens the best in us. Scorching hot summers give way to windburned winters. Wild horses gallop in advance of flash floods. Ancient mineral colors stream forth from the earth over geological time.

Through the deafening silence of this remote and off-grid landscape you can hear the call of a different kind of future—one where humans thrive in concert with Earth's abundance and where innovation demands respect for nature's complexity.

Together we acknowledge this traditional land of the Numu (Northern Paiute), Nuwu (Southern Paiute), Newe (Western Shoshone), and Washeshu (Washoe), and their elders past, present, and future.

Your challenge is to work collaboratively to build a community that balances growth with sustainability so that human history and natural history can realign to **stand against the tide of climate change** as we endeavor to turn away from extraction and consumption towards stewardship and regeneration.

Here in this high desert shrub steppe you have the potential to transform the world.

Accept the challenge and brace for impact!

Dream, Design, Deploy

GAME OVERVIEW

Players work as a team to **build a community** at Fly Ranch.

The game can accommodate **1–6 players**, but is **optimized for 4 players**.

The game is played over **20 rounds**. Your team will **design and deploy projects** that allow them to gain resources (WATER, ENERGY, FOOD, and CAPITAL) and to score COMMUNITY points.

All resources must be managed efficiently, and **community score is used to assess the team's performance** at the end of the game.

The goal is to **maintain regenerative conditions** at Fly Ranch as you **manage the land** and **grow the community**. This will require **strategic project design** to maximize REGENERATION and minimize DEGENERATION, as these conditions will impact the team's community score at the end of the game.

The team must also **manage random events**, which are revealed at the beginning of each round. As the game progresses, more event cards are revealed each round and the positive or negative impact of events are intensified. This simulates the escalating impact of climate change on community development and landscape conservation.

The team must collaborate to effectively navigate the challenges of a changing climate in order to build a thriving and sustainable community at **FLY RANCH**.

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60	Event Cards
159	Opportunity Cards
12	Partner Cards
1	Key Card
1	Achievement Card
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72	Zone Condition Tiles (double sided)
20	Capital Resource Tokens
12	Energy Resource Tokens
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ICON KEY

- Community Center
- Capital
- Energy
- Food
- Water
- Community
- Regeneration
- Degeneration
- Resilience
- Hazard
- Growth
- Structure
- Enhancement
- Support
- Ephemeral

GAME COMPONENTS

Round Marker
Use this to keep track of what round of the game you are in as you walk through the labyrinth.

Community Score Meeple
These 3 meeple will help you keep track of your community score.

One meeple counts hundreds, another counts tens, and another counts single digits.

Zone Condition Tiles
Use these numbered tiles to keep track of regeneration and degeneration for each zone.

Hazard & Resilience Tiles
Place these tiles inside the zones on the game board map during the counter phase.

Resource Tokens
Keep track of resources using these four cubes. Color matches the type of resource.

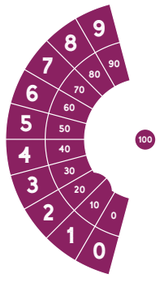
Growth Counters
Add these counters to growth structures during the counter phase.

Duration Counters
Add these counters to ephemeral projects and events during the counter phase.

Tracking Tiles
Place these next to ephemeral projects and projects with growth to remind you to add DURATION COUNTERS and GROWTH COUNTERS.

KEEPING SCORE

Round Counter



Community Score

Resource Counters

RESOURCE & COMMUNITY SCORING

Along the bottom of each opportunity card you'll see the impact of the opportunity on community score and the impact on resources (capital, energy, food, and water).

TERMS

Consultant
Consultants are non-player partners that provide additional bonuses to your team in 3 and 4-player games. Consultants can be randomly or manually selected before the start of each 3 or 4-player game.

Degeneration
Symbolized by red zone condition tiles, zones with DEGENERATION will acquire 1 new HAZARD at the end of every round.

Enhancement
An element of a project (opportunity card) that can increase the sustainability of a structure by conserving resources or boosting COMMUNITY scoring.

Ephemeral
A project that is time-limited by a certain number of rounds.

Hazard
Accumulating HAZARDS from events or from poor project planning could result in degenerative conditions.

Partner
Each player assumes the role of at least one partner, each with unique abilities that allow them to interact with the game in powerful ways. Players can randomly or manually select partners before each game.

Phase
There are four phases in each round of gameplay: event, partner, counter, and zone condition.

Project
A single opportunity card or set of opportunity cards that have been placed on the map (structures with or without enhancements and/or ephemeral projects) or on the design board (design board projects).

Regeneration
Symbolized by green zone condition tiles, zones with REGENERATION will acquire 1 new RESILIENCE at the end of every round.

Resilience
Accumulating RESILIENCE allows the team to protect the landscape from HAZARDS and to build regenerative conditions.

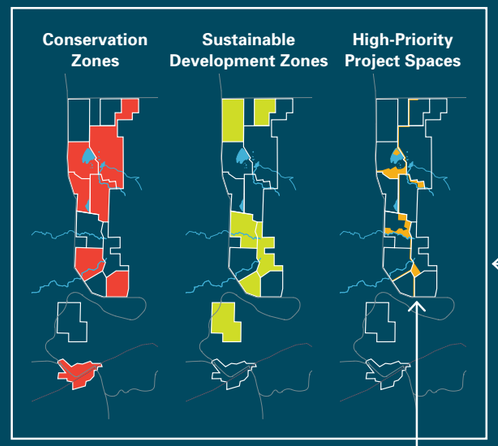
Round
There are 20 rounds to each game. Think of rounds like calendar years. The impact of climate change increases the severity of events in the second and third stages.

Step
During the partner phase each partner on the team takes actions during each of 3 steps: dream, design, and deploy.

Structure
A built infrastructure, land use, or building. Structures can be enhanced and supported by other opportunity cards.

Support
Opportunity cards that reduce the CAPITAL cost of projects, or that allow the team to accumulate CAPITAL.

GAME BOARD



The Map

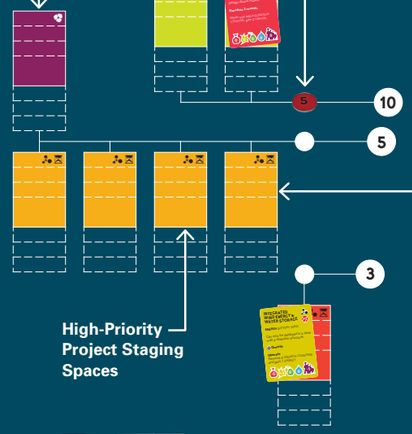
Fly Ranch is divided into **12 different zones** where the team can deploy projects. The map also includes the town of Gerlach. The team can deploy projects in Gerlach but Gerlach cannot accumulate HAZARDS or RESILIENCE (it is always a neutral zone condition) and is not used in the calculation of end-game scoring.

Zones are classified as either conservation zones (red zones numbered 1 through 6) or sustainable development zones (green zones numbered 7 through 12). At the end of the game, zone condition is scored differently for conservation zones and sustainable development zones (see *Game End* section page 23).

Zones 4, 5, 7, and 8 contain high-priority project spaces (orange). All projects deployed in high-priority project spaces cost 1 less CAPITAL to deploy.

Each zone has a project capacity which limits the number of structures or ephemeral projects that can be deployed there. The team can quickly reference a zone's capacity by reviewing the project card spaces adjacent to each zone.

Each zone has a corresponding location to track zone condition. REGENERATION or DEGENERATION tiles should be placed here. These tiles will be referenced in the zone condition phase, where HAZARD or RESILIENCE tiles will be placed according to zone condition.

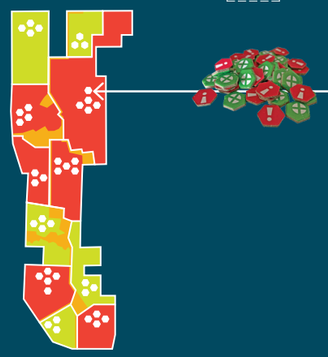


Round Counter

"Where are we in the game?" This helps you keep track! The little red dot on rounds 10 and 15 is there to remind you that you are approaching the next stage of climate change. Don't forget to check the achievement card as you progress through rounds.

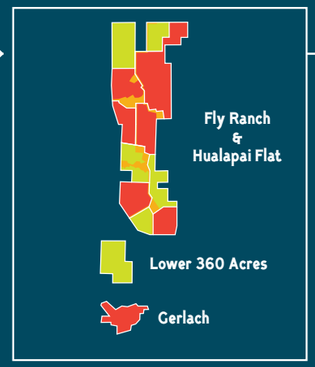
Project Staging Spaces

Opportunity cards that are deployed to the map are organized in project staging spaces connected to their zone of deployment. Structures should be placed on top of any enhancement(s) so that the card's effects (if any) can be easily read.



Hazard & Resilience Tile Locations

Place HAZARD & RESILIENCE tiles in the hexagonal spaces. HAZARDS or RESILIENCE are introduced to the map as a result of partner actions, events, or as a result of degenerative (red zone condition) or regenerative (green zone condition) conditions in a zone.



Resource Area

The team should organize resource tokens in the resource area.

Tokens should be organized according to resource type.

Consultant Card Location

In 3 or 4-player games, consultant partner cards should be placed in this area so they can be easily seen by each player.

Community Score Counter

The team will track their community score in the counting location shown in the plan of Black Rock City.

Design Board

The design board contains 4 project slots where the team organizes opportunity cards into projects before they are deployed to a project staging space.

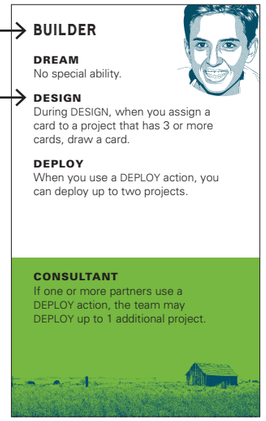
PARTNER

Each partner has special abilities that allow them to interact with the game in unique ways.

Unless otherwise noted on the partner card, players may only use their partner's special ability or a standard action (not both) during any step of the partner phase.

Type of partner

Special abilities of this partner during the three steps of the partner phase (refer to page 17).



Artist: Knows how to think outside the box, collaborate with communities, challenge conventional ways of thinking, and spark true innovation.

Builder: Knows how to problem solve and translate drawings and sketches into well-functioning buildings and systems.

Civil Servant: Knows how to make things happen in ways that protect public safety.

Community Organizer: Knows how to build public support for projects and nurture a regenerative social movement.

Conservationist: Knows what steps can be taken to protect natural ecosystems and support habitats.

Designer: Knows how to compose materials, technologies, and concepts in innovative and engaging ways to create beautiful, sustainable places for people.

Engineer: Knows how to make systems work together in regenerative ways that are greater than the sum of their parts.

Hydrologist: Knows how the water cycle works across micro and macro climates, underground, on the surface, and in the atmosphere.

Land Manager: Knows how to identify the most efficient and beneficial uses for productive and sustainable landscapes.

Philanthropist: Knows how to bring capital resources to projects.

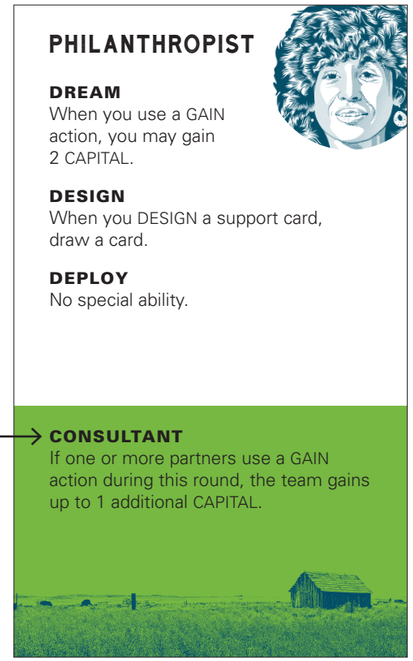
Rancher: Knows the symbiotic relationships between domesticated animals and the land on which they live.

Writer: Knows how to communicate ideas to the public and get people excited about our regenerative future.

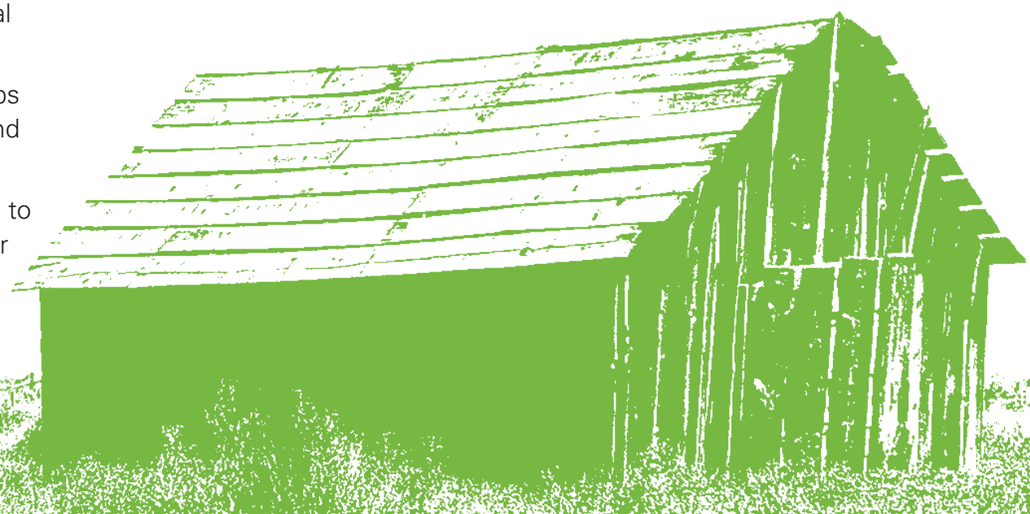
CONSULTANT

In 3 and 4-player games, consultants may be selected or randomly drawn from the partner deck after each player has been assigned (or selects) a partner. The number of consultants in a game are determined by the number of players in a game (see *Game Setup Conditions*, page 15).

Consultant abilities are listed at the bottom of each partner card (green background area of the card). Players may not use their partners' consultant abilities during a game.

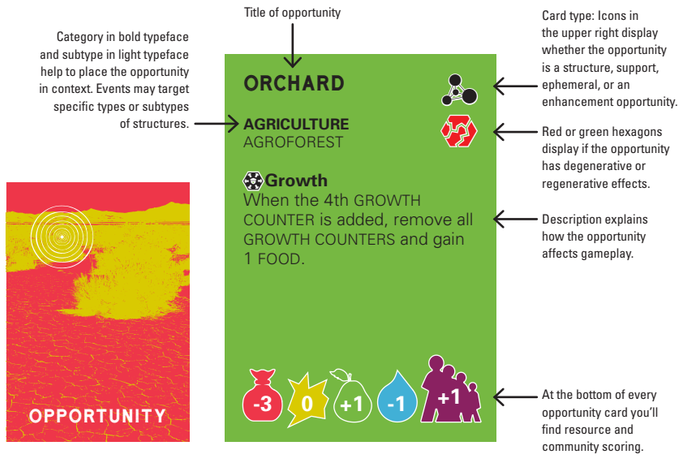


The consultant section of each partner card describes how the partner functions only when used as a consultant.



OPPORTUNITY CARDS

When strategically designed into projects and deployed to the map, opportunity cards allow the team to gain resources (WATER, ENERGY, FOOD, and/or CAPITAL), score community, and/or increase REGENERATION in a zone.



TYPES OF OPPORTUNITY CARDS

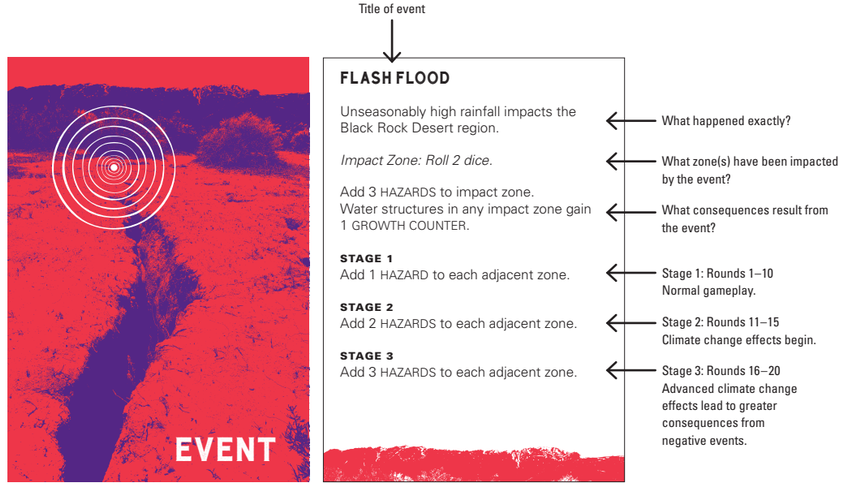
Structure
Structures are the primary cards that teams will deploy to gain resources and score COMMUNITY. All structures have a resource cost and a resource benefit once they are deployed. Events revealed in the event deck (each round) may target a particular type or subtype of structure in a zone or on the board (in general). A project may contain no more than one structure.

Enhancement
Enhancement cards must be deployed with a structure, or to a structure that is already deployed. Some enhancements can only be deployed with a certain type of structure (neighborhood, water, energy, agriculture, or community center). Any restrictions to an enhancement will be listed on the enhancement card. There is no limit to the number of enhancements that can be designed and deployed on a structure, but each enhancement to a project must be unique. You may not use the same enhancement twice on the same project.

Support
Support cards allow players to gain CAPITAL or reduce the capital cost of a project. Some support cards (grants) are only able to support a specific type of project. Any support restrictions will be listed on the support card. Once a project is deployed, discard any support cards that were used in that project by placing them on the opportunity discard pile. There is no limit to the number of support cards that can be designed and deployed with a project.

Ephemeral Project
Ephemeral projects remain on the map or design board for a limited number of rounds. The duration of an ephemeral project will be listed on the card. Most ephemeral projects have an effect that must be resolved every round, and/or an effect that is resolved when the project has ended. DURATION COUNTERS should be placed on ephemeral projects during the counter phase of every round. When an ephemeral project ends, place the card in the opportunity discard pile. Ephemeral projects cannot be designed or deployed with structure or enhancement cards, but can be designed and deployed with support cards.

EVENT CARDS



Events can have positive or negative impacts, or may have conditional impacts (based on structures present on the board).

Events can impact zone condition (adding to a zone's REGENERATION or DEGENERATION). Events can also result in the placement of HAZARD or RESILIENCE tiles and/or impact the team's resources.

Events can target a single zone, or a number of zones based on the types of projects deployed there. Some events require the team to role dice to determine the impact zone (this will be indicated in the event card's text).

Conditional events often have positive outcomes. Conditional events allow the team to capitalize on the presence of specific projects on the map or on regenerative zone conditions.

The impact of events become more intense in later rounds of gameplay as the effects of climate change increase overall risk.
See the definitions of stages 1–3 on page 18.

ZONE CONDITION

Tracking REGENERATION and DEGENERATION for each of the 12 zones as HAZARDS or RESILIENCE are added or removed.

RESILIENCE TILES

HAZARD TILES

REGENERATION ZONE CONDITION TILES

DEGENERATION ZONE CONDITION TILES

Resilience tiles are used to **represent habitat improvement or protections**.

Zones with REGENERATION (green zone condition tiles) will acquire RESILIENCE every round.

As event cards are revealed that would otherwise result in HAZARDS in a zone of the board, RESILIENCE are removed instead.

Hazard tiles are used to **represent habitat degradation**.

Zones with DEGENERATION (red zone condition tiles) will acquire HAZARDS every round.

At the beginning of the game, each zone will contain a number of hazard tiles (see *Game Setup Conditions*, page 15).

Events may result in new HAZARDS, and the placement of certain structures can also introduce HAZARDS into a zone if regenerative enhancements aren't used to offset DEGENERATION.

GAME SETUP CONDITIONS

Based on number of players

Number of Players	Number of Partners Controlled by Each Player	Total Partners on the Team	Number of Consultants	Starting Capital	Starting Food, Water, and Energy	Starting Hazards
1	3	3	2	6	3	2
2	2	4	1	2	2	3
3	1	3	2	6	3	2
4	1	4	1	2	2	3
5	1	5	0	2	2	1 *See note below
6	1	6	0	2	2	2 *See note below

*** 5 & 6 players:** 1 DEGENERATION in conservation zones

GAME SETUP

1
Draw or select partners. Partners can either be randomly assigned to each player, or players may take turns selecting partners from the partner deck. The number of partners controlled by each player is usually 1, but a player will need to manage more than 1 partner in 1-player or 2-player games (see *Game Setup Conditions*, page 15).

2
Draw or select consultants from the remaining cards in the partner card deck.
The number of consultants in a game is determined by the number of players as shown on page 15.

3
Retrieve starting resource tokens and place these tokens in the resource area. Starting resources are determined by the number of players as shown on page 15. Set all remaining resource tokens aside.

4
Shuffle the event deck and place it within arm's reach of at least one player.

5
Shuffle the opportunity deck and place it within arm's reach of all players.
To accommodate a larger table or more players, the opportunity deck may be divided into two decks of approximately the same size.

6
Place hazard tiles into each zone of the board. The number of starting hazard tiles for each zone can be found on page 15. Set the remaining resilience tiles and hazard tiles aside, as your team will need to use these tiles throughout the game.

7
Place **GROWTH COUNTERS** and **DURATION COUNTERS** within arms reach of at least 1 player.

8
Place the community center card (opportunity card) in the designated project staging space in zone 5. Place a degeneration tile (value of 1) in the zone condition area for zone 5. The community center is provided to the team at no cost, but it will generate 1 HAZARD every round (the zone begins the game as DEGENERATIVE). In 5 or 6-player games, place a degeneration tile (value of 1) in all other conservation zones.

9
The game proceeds according to the following phases:

Event Phase
Draw and execute event card(s).

Partner Phase
Each partner takes actions during dream, design, and deploy steps.

Counter Phase
In the following order:

- GROWTH COUNTERS are added to structures with GROWTH.
- DURATION COUNTERS are added to ephemeral projects.
- DURATION COUNTERS are added to events.

When growth structures, ephemeral projects, and event effects reach their counter threshold (as shown on the card) they are resolved immediately.

Zone Condition Phase
Hazard tiles are added to zones with DEGENERATION (red zone condition tiles). Resilience tiles are added to zones with REGENERATION (green zone condition tiles).

EXPERT TIPS

For efficiency in performing game tasks, we recommend that **different players should manage**:

- Placement of counters on structures or ephemeral projects;
- Placement of hazard and resilience tiles according to zone condition;
- Scoring COMMUNITY, and managing all resource gains or losses as projects are deployed, and managing consultants (refreshing consultants);
- Keeping track of game round, and drawing, reading, and resolving event cards.

ROUND OVERVIEW

EVENT PHASE

Each round begins by drawing an event card (or multiple event cards during stage 2 and stage 3).

- Climate change effect:
  As the game progresses, more events are revealed according the following rules:
  - **Stage 1: During rounds 1–10**
    Partners draw 1 event card at the beginning of each round.
  - **Stage 2: During rounds 11–15**
    Partners draw 2 event cards at the beginning of each round.
  - **Stage 3: During rounds 16–20**
    Partners draw 3 event cards at the beginning of each round.
- If an event's effects are delayed (end of round), or if the event has a duration, place this event card in a convenient location on the board until the event has ended.
- Once resolved, place the event card(s) in the event discard pile.
- For events with multiple stage effects, apply only those effects for the current stage of the game. Stage 1, stage 2, and stage 3 effects do not stack.

PARTNER PHASE

During each round, each partner on the team takes actions during each of 3 steps: **Dream, Design, and Deploy**. Each partner may use a standard action (outlined below) or their partner's special ability, but not both (unless otherwise noted on the partner card).

- **Dream:** During the dream step, each partner may use a **dream** action or **gain** action; partners may also use an optional **share** action.
  - Dream: If a partner uses a **dream** action, draw one opportunity card from the opportunity deck and place it into the partner's hand.
  - Gain: if a partner uses a **gain** action, add 1 CAPITAL to the team's resource area.
  - Share (optional): As an optional step, each partner may give a card to another partner. A card may only be shared once per round.
    - A partner's hand is restricted to 5 opportunity cards. At the end of the partner phase—if any player is holding more than 5 cards—that player must discard down to 5 cards.
    - A partner may not discard any cards unless they exceed the hand limit at the end of the partner phase.

EXPERT TIPS

When deciding if a partner should **share a card** with another partner, the team should consider the following:

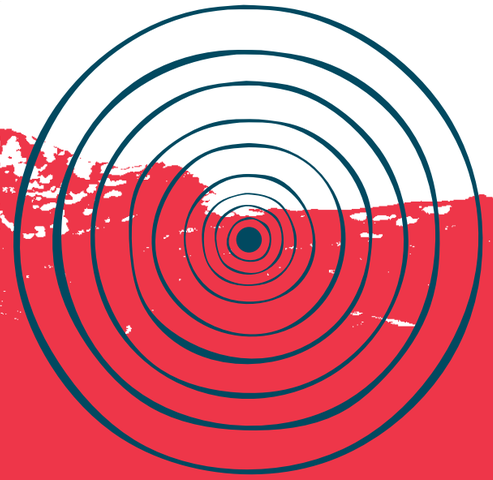
- Based on the special abilities of the team's partners, it may be more efficient or advantageous for a different partner to hold, design, or deploy certain cards.
- Partners will need to consider how many cards they will be able to use during design or deploy steps and may elect to give a card to another partner to avoid discarding at the end of the partner phase.

ROUND OVERVIEW CONTINUED

- **Design:** During the design step, each partner may take either a **design** action or an **operate** action.
    - Design: allocate a single opportunity card from the partner's hand to projects on the design board. The design board contains only 4 project slots. Once an opportunity card is designed to a project slot, and the team moves on from the design step, it may not be moved to another project slot or removed, except by a partner's special actions.
        - Ephemeral projects cannot be designed with structures or enhancements but can be designed with support cards in order to reduce or eliminate CAPITAL costs.
        - Design board projects (indicated on card text) are ephemeral projects that must be designed to an empty project slot and remain on the design board for a number of rounds (duration). No other cards may be designed to this project slot until the design board project has ended or the card is discarded.
    - Operate: Certain structures or ephemeral projects may have an operate function. Each partner can use an operate action at a deployed structure, ephemeral project, or active event. If they do, resolve the effects of the operate action immediately.
- **Deploy:** During the deploy step, each partner can use a **deploy** action, **restore** action, or **remove** action. At the end of the deploy step (the end of the partner phase), any partner with more than 5 opportunity cards must discard down to 5 cards—a partner may not discard cards unless they exceed the hand limit at the end of the partner phase.
    - Deploy: A partner may move a project from the design board, or an ephemeral project from their hand, onto a vacant project staging space on the map.
        - Structures or enhancements may be degenerative (red hexagonal icon) or regenerative (green hexagonal icon). When a regenerative enhancement is deployed with a degenerative structure (or vice versa), the project is neutral, and does not impact the condition of a zone. However, if a deployed project has a degenerative or regenerative (net) impact, the team must update the zone condition accordingly.
        - Ephemeral projects may also be degenerative or regenerative, but because these projects cannot be enhanced, partners cannot negate the regenerative or degenerative impact of these projects.
        - Project spaces on the map are limited and zones can support a specific number of structures or ephemeral projects.
        - Spend any resource tokens that are required for the project. Place all project cards (less any support cards) onto the appropriate project staging space connected to the zone of deployment. Place any support cards into the opportunity discard pile.
        - If a project allows the team to gain resources, retrieve any relevant resource tokens and place them in the resource area of the board.
        - If the project impacts zone condition, adjust the zone's regeneration or degeneration tile accordingly.
        - Once deployed, structures, enhancements, or ephemeral projects may have an immediate effect. Resolve those effects now.
        - If the team deployed a structure with growth or an ephemeral project, add a tracking tile near the project. These will make it easier to spot growth structures or ephemeral projects on the map when you enter the counter phase of the round (see counter phase).
    - Restore: A partner may use a restore action to remove 1 HAZARD from a zone of the map.
    - Remove: A partner may use a remove action to remove a project from the map. If a project is removed, the team will lose all WATER, ENERGY, FOOD, or COMMUNITY that was provided by this structure and its enhancements. The team must also pay the capital cost of the structure to remove the project. Once removed, place all structures and enhancements in the opportunity discard pile. Zone condition is not changed when a structure is removed from the map.

EXPERT TIPS

- To quickly reference a zone's capacity players can refer to color-coded card areas (project staging spaces) connected to each zone.
- The team should coordinate on the placement of projects and determine the best strategies to maximize scoring and minimize negative consequences.
- Projects deployed in high-priority project spaces (orange) cost 1 less Capital.



COUNTER PHASE

Add GROWTH COUNTERS to any structures on the map with growth, and DURATION COUNTERS to any ephemeral project on the map or design board. Finally, add DURATION COUNTERS to any active events with a duration.

- Add GROWTH COUNTERS to structures with growth. If there are enough GROWTH COUNTERS to trigger a card's effect, you may remove the appropriate number of GROWTH COUNTERS to trigger the effect.
- Add DURATION COUNTERS to ephemeral projects to track the number of rounds the project has been in play. Once all DURATION COUNTERS have been added (number of counters is equal to the project's duration), remove all DURATION COUNTERS and discard the ephemeral project. If the end of an ephemeral project triggers an effect, resolve this effect now.
- Add DURATION COUNTERS to any events with a duration. Once all DURATION COUNTERS have been added (number of counters is equal to the event's duration), remove all DURATION COUNTERS and discard the event. If the end of an event triggers an effect, resolve this effect now.

ZONE CONDITION PHASE

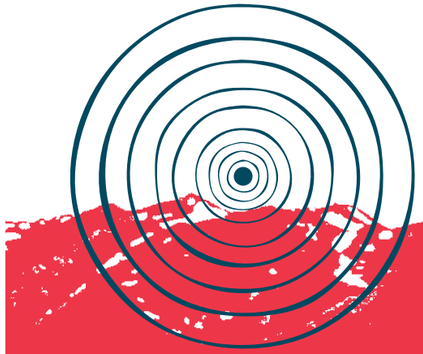
Add RESILIENCE and/or HAZARDS to zones on the map.

- To each zone with REGENERATION (green zone condition tile), add 1 RESILIENCE. If a zone contains any HAZARDS, remove 1 HAZARD tile instead.
- To each zone with DEGENERATION (red zone condition tile), add 1 HAZARD. If a zone contains any RESILIENCE, remove 1 RESILIENCE tile instead.
- If players are unable to add all resilience or hazard tiles to a zone during the zone condition phase (HAZARD/RESILIENCE capacity reached), all tiles are cleared from the zone, and the REGENERATION or DEGENERATION for the zone is increased by 1. The remaining HAZARD or RESILIENCE tiles are then added to the zone.
    - If a zone's REGENERATION or DEGENERATION is at the maximum level (6) and the zone is at capacity for resilience or hazard tiles, the zone's condition **spills over to all adjacent zones**. If spill-over occurs, place 1 resilience or hazard tile in each adjacent zone. If adjacent zones are already at hazard or resilience capacity, do not add any HAZARD or RESILIENCE tiles to these zones: spill-over cannot result in a change to the REGENERATION or DEGENERATION of an adjacent zone.

GAME END

At the end of the game—**after 20 rounds**—the team must adjust their community score based on the condition of all zones on the map, achievements, and based on certain events that were revealed or utilized throughout the game.

- For all sustainable development zones with REGENERATION, add the zone condition values to the team's community score. Subtract the zone condition values for all sustainable development zones with DEGENERATION.
- For conservation zones, zone condition values are multiplied by 2 before they are added or subtracted from the team's community score.
- Some events reward the team for meeting or exceeding objectives at the end of the game. Add these to the team's community score.
- Any achievements earned by the team are added to their community score.
- The team can now review their performance based on standard scoring categories (see page 24).



EXPERT TIPS

- Although scoring categories provide immediate feedback about performance, teams are encouraged to track their performance over multiple games, and attempt to beat their previous high score.
- Playing the game with new partner combinations or altering the number of partners in the game will provide a unique game experience. In an education setting this provides new learning opportunities, and allows players to critically review their performance in the context of learning objectives.

SCORING

Assess team performance!

That Stings a Bit (0 to 50 points) Well, desert life isn't for everybody. This experiment started out so promising, but maybe it was bound to break like a sun-dried sagebrush skeleton. Failure is the greatest of all teachers. Maybe you should take a few minutes and collect yourselves. **You will do better next time.**

Down, But Not Out (51 to 100 points) You managed your resources well, and you matched your lifestyle to the unpredictable climate, but you're still not ready for this brutal landscape. Heck, maybe luck wasn't on your side. **Better try again**, and make sure you give it your best shot. Also, maybe buy yourself some new boots before you get back out there…

Tip of the Hat (101 to 125 points) No one said this was going to be easy, but your work at Fly Ranch is starting to turn a few heads. **Your community will persist** in this landscape for many years to come. Use this momentum to build for a new generation.

Silver State Standard (126 to 150 points) Your stewardship of the landscape is matched only by your creative vision and tenacity. You've danced with the derecho and bathed in the seasonal rains. The vibrant green of spring is fleeting in the desert, but **your roots dig deeper by the day**. Keep growing.

History Books (150+ points) You've really outdone yourselves! Your community has it all—simple, strategically designed structures, and a vibrant, creative culture with enough moxie to make this machine function. Your community is equipped with the knowledge (and frankly, good luck) to shine like silver in the desert. **Your stewardship is legendary in the Great Basin region and beyond.** Drought, fire, cheat grass as far as the eye can see… you saw it all and you leaned into this life. Brush the dust from your brow, and feel free to smile with the sand and sun in your eyes. Now let me ask you a question: are you ready for next season?

FOR EDUCATORS

LEARNING OUTCOMES

Regenerate! provides learning opportunities in the context of regenerative land stewardship, sustainable development, systems design thinking, and civic engagement.

After playing the game, players should be able to:

- Identify limited and abundant natural resources in high elevation deserts and methods of sustainably utilizing resources in this ecosystem;
- Identify stressors in high elevation desert ecosystems and how multiple stressors can compound negative impacts;
- Describe the impact of stressors on the natural environment and on communities;
- Describe examples of anthropogenic and natural disturbances that can impact high desert ecosystems;
- Describe examples of active land management, and the potential value of these practices to mitigate disturbance;
- Describe the value of interdisciplinary relationships and adaptive project management in the design and implementation of community projects;
- Talk about the costs and benefits (short and long-term) of deploying various renewable energy systems, agricultural systems, and other kinds of resource infrastructures across an ecologically sensitive landscape, especially when physical space is limited;
- Describe the value of regenerative land use planning for long-term sustainability of resources and communities;
- Identify and describe processes and the types of infrastructures that can help reduce waste in a community and utilize resources more efficiently;
- Identify structural challenges or impediments that could exist that make it difficult to respond to climate change;
- Discuss the value of community diversity for short and long-term sustainability of a community.

GLOSSARY

Anaerobic Digestion
When organic matter is contained in a closed environment without oxygen it will biodegrade and give off biogas such as methane. Fermentation is a kind of anaerobic digestion.

Apiary
An apiary is a place where beehives are kept. They are an excellent addition to any sustainable agricultural operation. Pollinators like bees are critical to healthy farming.

Aquaculture
The farming of fish, crustaceans, molluscs, aquatic plants, algae, and other organisms in either freshwater or saltwater.

Aquaponic System
Combining aquaculture with hydroponic farming (growing plants without soil) in a mutually beneficial system wherein fish excrement provides nutrients to plants, which in turn purify the aquaculture environment.

Biomimicry (Biomimetics)
Applying lessons learned through observation of natural systems to the engineering of human systems. Natural selection has provided elegant solutions to complex problems that we need only emulate rather than try to re-invent.

Compost
Composted organic matter and biomass can be used to generate heat energy in addition to its usefulness providing plants with nutrients.

CSA
Community Supported Agriculture (CSA). Local networks of production and distribution allow consumers to support farmers directly. CSA produce and meats are fresher, better quality, oftentimes organic, and they provide a greater profit margin to farmers.

Derecho
A derecho is a large storm event that usually occurs in the summer. Derechos can generate hurricane-force winds, tornadoes, and flash floods.

Drip Irrigation
The key to water-efficient irrigation is to limit evaporation along the entire distribution, from the water reservoir to the plant roots. Drip irrigation provides just the right amount of water at exactly

Fish Hatchery
Fish eggs are cultivated in this closed facility for use in aquaculture systems. Be careful you don't release hatchery fish into the wild where they may compete with local species.

Food Forest
Forest gardening is a way to cultivate a variety of crops within one land area. It helps to avoid the problems of agricultural monocultures and increases diversity by supporting natural habitats.

Geothermal Heat Pump
Using the constant temperature of the earth as a source of heat energy, geothermal heat pumps can be set to heat or cool interior spaces.

Landrace
A landrace species is locally adapted to the climate over centuries. Such species can be cultivated to increase biodiversity.

Native Plants
Sometimes referred to as Indigenous species, these plants have evolved together with the local bioregion and have developed complex symbiotic relationships with local plants and animals. As a general rule use native plants whenever possible. The introduction of just one non-native species can be devastating to any natural ecology, as it can quickly take over and bring about cascading local extinctions.

Orchard
Trees like jujube, pomegranate, persimmon, fig, and guava are more drought resistant than others. Growing shade tolerant crops in between rows of trees in an orchard can increase the diversity of agricultural landscapes.

Overbrowsed
An area of pasture land that is eaten by livestock until there is little or no vegetation left. Overbrowsing can make it difficult to maintain healthy pastures. In extreme situations it can lead to habitat loss and even desertification.

Pasture
Well maintained pastures can help replenish topsoil with nutrients from livestock manure and thus help protect land from desertification.

Peak Energy
When the demand for energy meets or exceeds the available supply at any point in time. The issue can be resolved by adding more capacity, energy storage, or managing demand through energy efficiency and by encouraging those energy hogs to plug in at different times of the day!

Permaculture
Permaculture relies on whole systems thinking, stewarding the land in regenerative ways while producing highly nutritious food.

Poultry
Chickens can be an important part of a whole system permacultural farming practice when practiced humanely and sustainably.

Pyrolysis
The thermal decomposition of organic material at high temperature (concentrated solar power can be the heat source) in an enclosed low-oxygen environment. Pyrolysis can be used to produce biochar (a great fertilizer) and syngas (renewable fuel) from biomass waste, such as crop residues.

Seed Bank
A seed bank is an artificial repository to safeguard heirloom seeds and local species for future planting. Seed banks help to preserve genetic diversity over time. A soil seed bank is nature's version of the same. Seeds are contained within the soil and can lie dormant there for years, even centuries.

Silvopasture
Pasture land can be great for nourishing soils, but it's even better when you combine it with native trees. Because the trees have evolved for the local climate they do not need to be irrigated after they are established. The protection the trees provide from sun and wind and the improved mix of foraging material helps keep animals in prime health.

Solar Chimney
By taking advantage of the stack effect (convection brought about by the buoyancy of warm air), a solar chimney can improve natural ventilation in buildings. The taller the chimney (greater thermal difference), the greater the air flow that can be generated.

Solar PV Greenhouse
Ultra-thin amorphous silicon photovoltaic glass generates clean electricity from certain wavelengths (mostly blue and green light spectra) while allowing the rest of the sunlight spectrum to pass through for photosynthesis. Plants get the exact type of light they need to thrive while the rest gets converted into renewable energy.

Walipini
A walipini is a small, sunken, unheated greenhouse insulated by surrounding earth.

Xeriscaping
Xeriscaping is landscaping that requires no irrigation beyond naturally occurring rainfall, once the plants are well established in the soil.

GAME CREDITS

Land Art Generator

The Land Art Generator Initiative (LAGI) was founded in 2008 with a mission to accelerate the global renewable energy transition by inspiring the world to see the greatness of a post-carbon future. LAGI engages the world in an exploration of how art in public space can actively contribute to a sustainable future, and how renewable energy infrastructure can become a beautiful extension of human culture.

As we respond to the climate crisis and move closer to a 100% renewable energy world over the coming decades, renewable energy installations will necessarily become more prolific within populated areas, in cherished urban places, and within scenic landscapes. It is therefore important that the design of our sustainable infrastructures center concerns for art, design, and social justice. By approaching select community energy projects through the lens of creative placemaking, the great energy transition offers an opportunity for artists and designers to leave a lasting cultural legacy through which future generations can remember this important time in history.

Since the launch of the first LAGI open-call design competition in 2010 for Dubai and Abu Dhabi, thousands of creative minds from around the world have responded to the challenge with designs for site-specific public art installations that have the added benefit of generously and regeneratively giving back to the surrounding city through clean energy generation and the provision of other clean infrastructure systems.

Thanks to their innovation and creativity, LAGI design challenge participants are inspiring people everywhere about the beauty and promise of a net-zero carbon future, providing new ways of thinking about how we can integrate sustainable infrastructure into the cultural fabric of our cities.

For more information and to learn about the LAGI design competitions for Dubai, Abu Dhabi, New York City, Copenhagen, Glasgow, Santa Monica, Willimantic, Melbourne, and Fly Ranch, visit landartgenerator.org.

Burning Man Project & Fly Ranch

Black Rock City is the oldest and largest Burning Man gathering in the world. Each August, Black Rock City is briefly home to 70,000 people in northern Nevada gathering to celebrate Burning Man. The gathering has been built in roughly the same spot every year but one since 1990. In 1997, Black Rock City moved to Fly Ranch, a 3,800 acre property just north of the normal event site. For twenty years after that event, people imagined building a permanent home for Burning Man's temporary community at Fly Ranch. In 2016, Burning Man Project—the non-profit that organizes the city—became the steward of Fly Ranch.
https://flyranch.burningman.org

LAGI 2020 Fly Ranch

The LAGI 2020 Fly Ranch design challenge aspired to set the highest standard for regenerative design by inviting interdisciplinary teams from around the world to imagine the foundational infrastructure of Fly Ranch, Nevada as an engaging and interactive landscape. The challenge, open to everyone everywhere, brought forward creative solutions to interconnected systems of energy, water, food, shelter, and regeneration.

As Burning Man Project deploys these closed-loop systems of survival, Fly Ranch is in the process of becoming a year-round venue for human creativity, innovation, and exploration in harmony with nature. For more information visit www.lagi2020flyranch.org.

Tunnel Monster Collective

Tunnel Monster Collective (TMC) is an independent game design company based in Pittsburgh, PA that specializes in thematically rich tabletop games. Established in 2019, TMC was built from a passion for creative design and unique player experiences. Their mission is to utilize the power of collaborative storytelling to explore fascinating histories, harrowing and hopeful futures, and memorable shared moments for players.
www.tunnelmonster.games

Regenerate! was developed as part of LAGI 2020 Fly Ranch, a partnership between Land Art Generator and Burning Man Project.

Concept: Land Art Generator

Game development: Tunnel Monster Collective

Project management: Land Art Generator

Design: Land Art Generator

www.landartgenerator.org
www.lagi2020flyranch.org
www.regenerate.games

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The COOPx: Mobile Hen Houses for Fly Ranch by **J. Matthew Thomas** is a series of modular solar-powered climate controlled hen houses that provide organic and free-range eggs while fertilizing the Fly Ranch soil, providing a sustainable use for food waste, and engaging the community in a sustainable local economy. **Shortlisted proposal to the LAGI 2020 Fly Ranch Design Challenge.**

Aqua Planterra by **Felix Cheong, Haley Zhou, and Rachel Cohen-Murison** uses locally sourced clay vessels and coiling pottery techniques to contribute 70,000 liters of potable water per year/vessel, 684 cups of edible plants and herbs per year/vessel, educational programming for the local community, sustainable goods for a circular economy, and enhanced habitat for local species. **Shortlisted proposal to the LAGI 2020 Fly Ranch Design Challenge.**

KADMON by **Boris Ryabov (Steamology Institute), Liya Ivanova, Kirill Ivanov, Sergey Ivanov, Olga Kritova, Laurent Rains, Ilyaz Khairov (Archmeta Studio), and Michael Bogomolny (Archmeta Studio)** incorporates concentrated solar thermal with dual-axis tracking and Fresnel reflectors, hydronic floor heating, and Airtex membrane construction to provide a communal bakery, multipurpose spaces, steam sauna, and community gardens. **Shortlisted proposal to the LAGI 2020 Fly Ranch Design Challenge.**

Dream, Design, Deploy

REGENERATE!