General Rules

- Landform = row of placards, including its deck. COe
- Atrophy: Discard a cube to the soup or return a biont to its owner, who adds 1 catalyst of their color from the soup to their tableau pool. Atrophy must happen in this order: Disc, glossary
 - a. mutation cubes I guess this includes diseased cubes, because the glossary has special rules for atrophied diseased cubes, but I don't understand them.



Microo

- If an unpromoted mutation loses its + cube, discard it to the bottom of the deck in the organism's home row.
- If a promoted mutation loses its + cube, flip it to its unpromoted side, carrying the non-+ cube back to be its original + cube self on the unpromoted side.
- If a promoted mutation loses its non-+ cube, nothing further happens immediately; however, if it later loses its + cube, then it flips to its unpromoted side, has no cube for the + space on this side, and is discarded to the bottom of the deck in the organism's home row.
- b. chromosome cubes / organ cubes
- c. chromosome bionts / foreign gene bionts / endosymbiont bionts
- d. A: trophic bionts
- Extinction: If your non-parasite organism goes extinct, you retrieve its placard/card as a trophy for 1 VP at game end. If your parasite goes extinct, you retrieve its card for reuse. Add MPC: If AI ends up with a macroorganism parasite because your host goes extinct, the parasite does, too, and AI keeps it as a trophy. LTe

by Nathan Morse

- Home row: E2
 - o Microorganism: The landform icon on the left edge of its placard.
 - Macroorganism:
 - Marine: ocean.
 - Terrestrial: continent.
 - (I: Skip) Parasite: Same as its host.
- 🔸 Wantonness = 🐕 on all of your microorganism's mutations + 🥳 on microorganisms in which you are a foreign gene. 🗛
- Your tableau pool's catalysts are limited to 12 ÷ p of each color, where p is the number of players (1p: 6 °1, 2p: 6, 3p: 4, 4p: 3). B3b
- Whenever a biont returns to your tableau pool due to manna death F2a, atrophy, or extinction, add 1 catalyst of your color from the soup to your tableau pool. B4a
- Roil a deck: Cycle its top card to the bottom. D2b
- A: Some macroorganism organs and endosymbionts grant abilities depicted in attached bubbles. If 2 organs share a bubble, each organ grants
 those abilities; so, yes, having both organs grants them twice. H5a

Play A — Each round (200,000,000 years A5) comprises the following 5 phases:

- 1. Events A1, D
 - o Until you reveal an event without \$\mathbb{G}\$, flip the top event onto the event discard, combining its icons with the \$\mathbb{G}\$ cards revealed this phase. D1
 - o The last of the events you just drew depicts the player order. A6

Note: If the final card of the game has \$\mathbb{G}\$, keep the previous round's player order. \$^6\$

- A: After Tropical Waterworld, place it atop the continent landform until the next . While this card is there, the continent row is inactive, all earth events D3 skip the continents row (no roiling; no adding continent refugia), and runaway greenhouse is triggered by 30 D1b
- Flip the landform cards to match the landform icons on the last event drawn. A1b, D2, D3
- For each active landform, roil its mutation deck. A1b, D2b
- Apply event icons to all players. A1c Apply event icons to all refugia and organisms, even in inactive landforms. D
 - **©** / **©** New Refugium: For each **©** / **©** , draw a refugia card from under the highest/lowest active landform in the column [with placards remaining D3], and place it at the right end of its row. D3a Load its disorganized field with the indicated manna cubes from the pool. D3b
 - • Radiation Smite: For each , each refugium [without ♥ D4b] loses its rightmost enzyme; if no enzymes, it loses a manna cube (leftmost on the placard; if it is both organized and disorganized, remove the disorganized one). D4 If this leaves a refugium without cubes, remove it from the game, returning the bionts to their owners. D4a
 - **Extreme Temperatures:** Sum the **(**and only apply this effect once for all of them, when evaluating the first one). For each organism, subtract its **(**red chromosomes + this icon on mutations), and if the result is positive, it suffers that many **atrophies**. D5
 - O_2 Spike: Sum the O_2 (and only apply this effect once for all of them, when evaluating the first one). Each player subtracts each of their organism's O_2 , and if the result is positive, it suffers that many atrophies. Description of cubes or bionts. Description of cubes or bionts.
 - **A UV Radiation:** The number in **A** indicates the maximum mutations/organs each organism can have. In player order, discard each organism's mutations/organs down to that limit. D7
 - Discard any mutation cubes on discarded mutation cards. DTa
 - If the organism has no \nearrow , it must lose healthy mutations before diseased mutations. D7b MPC: Al will try to get rid of yours first. L7c
 - Discarded mutations go face up under the mutation deck in the organism's home row. D7c
 - A: If a macroorganism has an organ or occupied endosymbiont space with $^{\bullet}$, the entire organism is safe from UV. D7d
 - A: Cancer: If appears, each macroorganism must roll 1 die for each organ and 2 dice for each biont. It suffers 1 atrophy for each 5–6 more than its number of blue chromosomes that it rolls. D8
 - If the macroorganism has Q, ignore 5s. D8a
 - For each 1 you rolled, generate 1 catalyst of any color, and add it to your tableau pool. DBb
 - A: Drought: If @ appears, each terrestrial macroorganism suffers 1 atrophy, unless it has an organ or endosymbiont with W. D9
 - 🔳 🌑 / 🥸 (I: Skip ^{C3}) A: Global Cooling/Warming: 🚳 / 🚳 is in effect for autocatalytic rolls (🍩 / 🚳) until the opposite occurs. D10
 - If last 4 climate change icons are @ @ @ @ / @ @ . the game ends at the end of the round, D10a unless someone calls for a blind Gaia vote to negate the triggering climate change; D10b however, if the game still ends, anyone who voted for its end ends up ½ their VP, rounded up. D10c
- If the event deck is empty, the game ends at the end of the round.

- Assign each biont & catalyst ^{A2, E} in player order ^{A6} (most wanton player can be first player for the phase ^{A2}) 1× around; may pass. ^{A6d} Note: Each biont can be used only once this phase, either assigned, used to supplant, or moved. ^E
 - Assign bionts (domes) and catalysts (discs) to refugia, respecting Entropy limits ^{E2a}. ^{A2a, E1} 1p: Al always tries to attach a random side of its parasite card to the host that will maximize its diseased cubes, but it cannot become a hyperparasite. ^{C1b}
 - Place one or more of your bionts (unassigned or disorganized from a refugium in an active D2a row, or [if either one of your organisms or a foreign gene has [67] from an organism; however, if this leaves a microorganism with no bionts, it goes extinct E1a) either into the organized field of a refugium in either an active row or a row where you have another biont, or into your pool. E1b Note: If you removed the last biont from a microorganism, the microorganism goes extinct. E1a
 - If any of your bionts are in organisms that have mutations with ¾, you may assign anywhere. E2d
 - Your Entropy Limit is the number of green chromosomes/organs in 1 organism in which you have a biont (even as a parasite), or 1, whichever is greater. E2a If you are at or beyond your entropy limit, you cannot assign more bionts; however, you don't have to remove any. E2a.
 - Deep Hot Biosphere (♥:♥): For each biont you place here, spend a catalyst of any color.
 - Place one or more of your catalysts (from your tableau pool E1c) in the leftmost unoccupied enzyme slots of a refugium. E1
 - (I: Skip ^{C3}) Attach or supplant a [MPC: non-macroorganism ^{L2b}] parasite and assign a biont to it. ^{A2b}
 - Choose one of the following as a host for your parasite card (the host must have ≥1 cube the parasite can steal as a diseased cube E3b):
 - As a parasite on an organism in an opponent's tableau, which is in either an active row or a row where you have a biont (either in a
 refugium or in an organism with that row as its home row). If the host already has a [MPC: non-macroorganism L2b] parasite,
 supplant E4 that parasite. E3b
 - As a hyperparasite on a parasite in any tableau. E3, E3d If the host already has a [MPC: non-macroorganism L2b] hyperparasite, supplant E4 that hyperparasite. E4b
 - Place 1–2 of your bionts (unassigned or disorganized from a refugium in an active D2a row, or [if either one of your organisms or a foreign gene has [1] from an organism; however, if this leaves a microorganism with no bionts, it goes extinct E1a) on the card. E3
 - Steal 1–2 cubes from 1–2 of the host's mutations, which neither demotes nor removes those mutations, nor does it alter their effects. E3c
 - A: If the host is a macroorganism, steal organ cubes as diseased cubes, which disables abilities granted by its "bubble".
 - Even if the parasite loses all of its diseased cubes, it does not detach. It only detaches if it is supplanted E4 or goes extinct. E3c-
 - If its host goes extinct, the parasite goes extinct E3h MPC: ...unless the parasite is a macroorganism, in which case the parasite ceases to be a parasite: L4a
 - The host loses its mutations and cubes, then move the placard underneath the macroorganism card.
 - Send the parasite card back to its owner.
 - Send the repurposed placard to the former parasite's owner. L4a
 - MPC: If your macroorganism parasite goes extinct, it merely reverts to its microorganism state, and you take 1 catalyst of your color from the soup. You can fill its diseased cube spaces from the macroorganism's organs, and its biont spaces from the macroorganism's endosymbionts. If the microorganism parasite ever has 0 bionts of its color, it immediately goes extinct. L4b
 - If the parasite has any kind of Pollution! SPIKE, it makes an immediate oxygen spike attack against all other organisms in its row. Htd Count the recipient's green chromosomes. Each player subtracts each of their organism's , and if the result is positive, it suffers that many atrophies. Def You may opt to atrophy antioxidants or vitamins instead of cubes or bionts. Deb
 - No matter where your parasite is, as long as you have ≥1 biont on it, it is yours, under your control. E3g
 - Supplant: If, by stealing 1–2 cubes from the incumbent parasite and/or mutations or organs of the host organism, your parasite would have more diseased cubes than the incumbent does (which is simply impossible if the incumbent has the maximum of 2), then you may supplant the incumbent. ^{E4}
 - 1. Return the supplanted incumbent's remaining diseased cubes to the host organism. It keeps its mutations and any hyperparasite. ^{E4}
 - 2. The supplanted parasite immediately either attaches/supplants or goes extinct. It can only attach/supplant in either an active row or a row where you have a biont (either in a refugium or in an organism with that row as its home row). ^{E4}
 - Assign ≥1 catalysts as antioxidants (o o esa) or vitamins (esa) directly to your organism's placard; A2c, E5 however, parasites (A: and terrestrial macroorganisms esa) can receive neither. Esc
 - Move any of your bionts, which this phase has neither been assigned nor used to supplant, E6e from one microorganism to another microorganism using horizontal gene transfer, if any microorganisms that are either yours or that contain you as a foreign gene have **. A2d, E6
 - You may move 1 biont per 💆, from a microorganism to either a refugium or another microorganism, in either an active row or a row where you have a biont (either in a refugium or in an organism with that row as its home row) including the organism from which it is moving or to your tableau pool. ^{E6}
 - If you try to move it into a more wanton opponent's organism, that opponent can block the move, requiring you to spend this move on one of the other options listed above, which could be moving back to the organism from which it came. Ega
 - You are allowed to make your microorganism extinct by moving your last biont from it.
 - If you remove your last biont, but foreign genes remain, one of those players (your choice) gains control of it; move it to their tableau (unless it's a parasite).
 - If someone else gets control of your parasite this way, you regain control if either it goes extinct or you get a biont in it again. Esc
 - You cannot use HGT on macroorganisms. Period. ^{E6d}
- 3. Autocatalytic Roll A3, F in refugia order (English reading order F0a) A3, F0
 - For each refugium with bionts, ^F see who has the highest total of manna (bionts/cubes ^{F1a}) and enzymes of their color, ties broken by the color hierarchy on the refugium (furthest left wins). These instructions are for you: ^{F4}
 - i. Make an autocatalytic roll (1 die per organized cube + 2 dice per organized biont ADD), A3 even if it's inactive. FOd
 - ii. If your biont is on an uncontested refugium of your color, you may reroll all of the dice once. Foc

 - iv. For each die matching death dice not covered by a disc during the die roll, apply all effects of matching death dice: A3b, F2, F2d

- v. If your roll included any doubles, and you still have a biont here, you may take and flip the refugium to become a microorganism. A3c, F3 If your roll included any doubles, and you no longer have any bionts here, pick someone who does, who may take the microorganism. F4e
 - I: Return other players' bionts to them. For each biont they get back, they take a same-color catalyst from the soup. ^{C3}
 - Put all organized manna (bionts/cubes F1a) in the chromosome fields as chromosomes. F3a Other players' bionts therein are called foreign genes. F4d
 - Discard all enzymes and disorganized manna to the soup. F3a, F3b
- 4. **Darwin Roll A4, G** in player order A6 (most wanton player can be first player for the phase A4)
 - o For each of your microorganisms (bacteria/parasites), in whatever order you like. A4, G
 - Make a Darwin roll (1 die per cube + 2 dice per biont). A host never includes its parasite or the parasite's diseased cubes in the host's roll. G0a
 - ii. You may reroll **once** a number of dice up to the number of yellow chromosomes it has. A4a, G1 1p: Al will only reroll **errors**. C1e
 - iii. For each triple you rolled, add 1 catalyst, of the color indicated in the lower-right corner of the placard (for a microorganism) / the color of your parasite card (for a parasite), to your tableau pool. G2, G2a
 - iv. For each 1 you rolled, add 1 catalyst, of the color indicated in Metabolism Chromosomes (Phase 4) on the placard (for a microorganism) / the color of your parasite card (for a parasite), **per red chromosome** it has to your tableau pool. ^{G2, G2a}
 - v. **Errors:** Each 6 you rolled is an error. If it does not have , each 5 you rolled is also an error. G3

 M: Instead, each 6 you roll is an error if it does not have (and 5 is never an error). C4
 - vi. CC: You may discard 1 error die to purchase H1 or promote H2 1 mutation. G4 (If it has G, you may discard 2 to for 2, instead. G4a)
 - vii. For each error beyond the number of blue chromosomes it has, it suffers 1 **atrophy**. ^{G3}
 Atrophies (token losses) & Extinctions. ^{A4c, A4d}
- 5. (CC: Skip) Purchase As, H in player order As (most wanton player can be first player for the phase As); exception: parasite purchases right after its host; As may pass. As may pass. As may pass. As may pass. As the Al of your color goes right after you. C2a
 - o For each of your bionts in an organism, you may spend 1 catalyst H0a to make 1 purchase (a new mutation H1, mutation promotion H2, marine macroorganism H3, red queen H4, or organ H5) A5b for that organism (if the organism has ⓐ, you may make 2 sequential purchases, instead H0e).

 A5a 1p: For AI bionts that are foreign genes or endosymbionts in your organisms, you may use them to make purchases; otherwise, the AI does: C1b [MPC: It evolves into a marine macroorganism if it can; if not, buys an organ if it can; L7a if not, it will red queen to fill its organ slots; L7b if not, it will try to become a terrestrial macroorganism; L7d if not] It promotes a mutation if it can; if not, buys a mutation.
 - HOe, which agrees with A5e, but has some conflict with B3a's note and HOq. "Should say must."
 - H0+
 - HOq, which agrees with B3a's note, but disagrees with A5e and HOe. "Should say must."
 - o Thé catalysts spent come from the organism's pool, such that parasites must spend from their host's tableau pool. Ase
 - □ If it has ●, you can use any color of catalyst. Hod
 - Otherwise, the color of the catalyst is determined by what you buy (you may spend any identical pair of catalysts, instead): A5d, H0a req. C color

 Buy a microorganism mutation H1

 mutation color
 - (I: Skip ^{C3a}) 1p: Al randomly chooses a mutation it can afford to buy. ^{C1d}

 - Without peeking at its back, take the topmost mutation card from either an active row or the recipient organism's home row. H1
 - Place the mutation in a row beside its recipient. For a parasite, to the left, for a bacterium, to the right. HI
 - Add a mutation cube on the + cube space of the mutation, matching the color of the space.
 - All of the mutation's abilities are immediately in effect, except \(\bigset \), which kicks in next round. H1c
 - If the mutation has any kind of Pollution! SPIKE, it makes an immediate oxygen spike attack against all other organisms in its row. Had Count the recipient's green chromosomes. Each player subtracts each of their organism's , and if the result is positive, it suffers that many atrophies. De You may opt to atrophy antioxidants or vitamins instead of cubes or bionts. Deb
 - Promote a microorganism mutation H2

[unpromoted] mutation color

- (I: Skip ^{C3a}) **1p:** Al randomly chooses a mutation it can afford to upgrade. ^{C1d}
- Flip the mutation to its promoted side, carrying the mutation cube over to this side. H2
- Add a mutation cube on the + cube space of the promoted mutation, matching the color of the space. Hza
- The unpromoted mutations abilities immediately lose effect. H2b
- All of the mutation's abilities are immediately in effect, except 🗞 , which kicks in next round. H2c-
- If the promoted mutation has any kind of Pollution! SPIKE, it makes an immediate oxygen spike attack against all other organisms in its row. Had Count the recipient's green chromosomes. Each player subtracts each of their organism's , and if the result is positive, it suffers that many atrophies. De You may opt to atrophy antioxidants or vitamins instead of cubes or bionts.
- A: Evolve a bacterium (MPC: or parasite, L1 but not hyperparasite L1b) into a marine macroorganism H3
 any
 - The bacterium plus its mutations (but not its parasites) must contain the cubes indicated in the "barcode" along the left edge of the
 macroorganism you select. Spend those cubes, which are now represented by the system chromosomes barcode. Had a system chromosomes still serve the chromosomal roles depicted on the bacterium placard. Had a system chromosomes still serve the chromosomal roles depicted on the bacterium placard.
 - Take any available macroorganism card and place it atop the bacterium placard. Ha
 - Move the leftover cubes onto the organ spaces on the macroorganism, then discard the remainder of the cubes. Hab
 - MPC: If this is a parasite, discard any host mutations that lost all of their cubes as diseased cubes (now discarded).

 - Put the organism owner's biont in the lowest trophic level of CHP that no macroorganism in this row has claimed. If all 3 were already claimed, set it beside CHP. H3c This biont still serves the chromosomal roles depicted on the bacterium placard. H3c-
 - Move the other bionts from the bacterium and its possible parasite (including foreign genes) onto the endosymbiont spaces on the
 macroorganism, then return the remainder to their owners, and for each biont returned, add 1 catalyst of the same color from the
 soup to their tableau pool. F2b, H3d

- MPC: If this is a parasite, and its host is a microorganism, the host's symbionts become endosymbionts in this; however, the remainder stay in the host. L1a
- If the bacterium had a parasite that had a hyperparasite, because the parasite is now assimilated into the macroorganism, the
 hyperparasite becomes a parasite of the macroorganism (without any diseased cubes, of course; they went away above).
- Discard the bacterium's mutations to the bottom of its home row's deck. H3f
- Discard the bacterium's antioxidants (● E5a) and vitamins (E5b).
- If this is the first macroorganism in the game, remove all event cards from the deck that are not from the proterozoic era.
- A: Buy organ for macroorganism H5

organ cube color

- (I: Skip C3) Red queen: Host steals parasite's cube (if it has none, biont H4a), or parasite steals host's cube. H4 color of cube to steal
 - Cost exception: If you are Yellow, you don't have to pay to steal from a parasite. H4d
 - The organism must have ^{H4}
 - Either the organism must have more $\stackrel{\text{Lift}}{\longrightarrow}$ than its target, or you must have permission from the target's owner (1p: Al never grants permission C^{1g}). H4
 - A: If a macroorganism steals a cube from its parasite, but has no suitable organ space for it, discard it. Hab
 - If an organism steals the last biont from its parasite, the parasite goes extinct. H4a
- A: If a marine macroorganism was created, went extinct, or changed its red or yellow chromosomes, rearrange the trophic level bionts of all
 marine macroorganisms according to metabolic rate: lowest, P; second-lowest, H; third-lowest, C; resolve ties randomly.
 - Metabolic rate is the macroorganism's total number of red and yellow chromosomes, including system chromosomes. Heb
 - If there is a 4th marine macroorganism, in turn order, each player does the following for each of their marine macroorganisms: Head of their marine macroorganisms: Head of their marine macroorganisms: Head of their marine macroorganisms.
 - If you have enough catalysts to buy the rest of its organs (counting its parasite's diseased cubes as if they filled organ spaces H5e), you may do so to make it terrestrial.
 - Players with endosymbionts in it may contribute. H6c
 - You may spend extras to buy organs for the newly terrestrial macroorganism.
 - Until there are only 3 marine macroorganisms, the marine macroorganism with the lowest metabolic rate goes extinct; shift trophic levels of the survivors.
- A: If a terrestrial macroorganism was created, went extinct, or changed its red or yellow chromosomes, rearrange the trophic level bionts of all terrestrial macroorganisms according to metabolic rate: lowest, P; second-lowest, H; third-lowest, C; resolve ties randomly.
 - Until there are only 3 terrestrial macroorganisms, the terrestrial macroorganism with the lowest metabolic rate goes extinct; shift trophic levels of the survivors.

Game End — Tally your total VP as follows (1p: Instead, if you have bionts in 2 marine macroorganisms [MPC: after subtracting Al's living and trophy macroorganisms L⁷¹], you win; if in 2 terrestrial macroorganisms [MPC: after subtracting Al's living and trophy macroorganisms L⁷¹], you win big): ¹¹

- 1 VP for each cube (and system chromosome) on your organisms (bacteria, parasites, macroorganisms) and their mutations. 11a
- 1 VP for each of your bionts in anyone's organism. Ith
- A: 1 VP for each of your extinct organisms. Itc
- A: Shared equally among all players with any bionts on it: 11d
 - 12 VP if your marine macroorganism (MPC: which may be a symbiote L⁶) is at the highest marine trophic level of all marine macroorganisms; 6
 VP if it isn't. 11d MPC: Double the VP if it is a symbiote in an all-macroorganism symbiosis. L⁶
 - o 12 VP if your terrestrial macroorganism (MPC: which may be a symbiote L6) is at the highest marine trophic level of all terrestrial macroorganisms; 6 VP if it isn't. I1d MPC: Double the VP if it is a symbiote in an all-macroorganism symbiosis. L6

In a tie, the tied player with more catalysts wins.

The Sequel: You can carry these results into a game of Bios: Megafauna if you like, following those instructions: K

Setup c

- 1. Dump all the cubes and catalyst discs in a bowl to form the soup. COB
- Each player takes a random color (1p: choose 2 ^{C1}) and does the following: ^{COa}
 - a. Take the 4 B4 (4p: 3 B4) (C: 3 C2) biont domes in this color. COa
 - b. (I: Skip ^{C3a}) 1p: For each of the other 2 colors, place a cube under 1 biont for the Al player, who will use its parasites. ^{C1c}
 - c. C: Each player places a cube under their 4th biont for the Al. C2a
 - d. Flip 1 biont upside down to show that it is unassigned. $^{\text{C0a}}$
 - e. (I: Skip C3) Take the parasite card of this color. C0a
 - f. Take 1 catalyst disc of your color from the soup, and place it in a tableau pool (a pool of unassigned bionts and catalysts in your tableau ^{B3a}) with your bionts. This is an unassigned catalyst. ^{C0c}
- Shuffle the event cards; separate them by eon. Stack Hadean atop Archean atop Proterozoic. Remove bottom 1 (S: 4 ^{COd*}) and top 3 cards unseen. ^{COd}
- Shuffle the refugia placards; separate them by landform. Place these decks, bacterium side down, in a column: cosmic, ocean, coastal, continental. ^{C0e}
- 5. Place each landform card, inactive side up, atop its refugium. cof
- Shuffle the mutation cards. Set a 5-card deck left of each refugium, RNA (i.e. single strand, not DNA, which is double strand) side up. ^{C0g}
- 7. Stack the macroorganism cards where everyone can access them. ^{COh}

Legend

black		Bios: Genesis (2 nd edition) base game	red	С	Cooperative game (requires 1p) C2	purple	Α	Advanced game
blue	S	Short game COd+	green	1	Introductory game (incompatible with A) C3	cyan	CC	Crystal Catastrophe variant G4
magenta	1p	1-player game (requires CC) C1	yellow	M	Macro variant (requires A; for sequel K0a) C4	orange	MPC	Macro Parasite Chimera variant L

Revision Log

0.9 Phil Eklund ruled on the a5e/H0e must versus B3e/H0g may: all should say must.