Balance Pass

Issues:

- Enemies are too weak/not dangerous.
- Boss too tough
    - too much health. Boring to fight.
    - Almost consistently one-shots player. Unfun.
- Too easy/fast to win.

Quantities:

- Spider health
- Spider web damage, speed
- Spider movement speed
- Tree health
- Enemy fly speed
- Enemy spawn rate
- Enemy health
- Charger Bee attack range, damage, speed
- Ranger Bee attack range, damage, speed
- Boss Bee attack frequency, damage, range, speed
- Ally ant spawn rate
- Ally ant type frequencies

Process:

What's the primary goal of this balancing pass?

- Create a more fun, challenging experience. Right now it is just too easy and uninteresting to play for any meaningful amount of time.

What are some possible solutions?

- Reduce Spider web damage
    - Enemies take longer to kill, does that make them more dangerous?
    - Trees take longer to kill might make destroying a tree feel tedious.
    - Feel less powerful generally, but it might increase the importance of the XL mutation.
- Increase Enemy health
    - Enemies take longer to kill, does that make them more dangerous?
    - Could vary between enemy types – probably should
- Increase charger enemy attack range
    - Make the enemies more aggressive, the player can't just ignore them
    - Might make the game feel too hard, or too busy
- Increase enemy damage
    - Make enemies more dangerous, the player can't risk getting hit more than a couple times
        - The player might play more safe
    - Might make the game too punishing
- Reduce rate of ally spawning

- Make damage taken mean more, the player can't just rely on getting healed right away
- The player may not see all the types of powerup
- Risk making the game too punishing or too rng
- COMPLEX: more interesting level design – one flat plane with spaced out trees is not interesting to play on.
    - Lots of work to implement
    - More interesting gameplay
    - Potential for more varied gameplay
- COMPLEX: Augment the boss fight with new attacks
    - The boss has different phases, but only one attack in each phase
    - More interesting and fun if there are more attacks

Changelog 1:

Each change was made in isolation – to see the effects of each change individually.

- Reduce spider web damage (20 -> 10)
    - Enemies aren't more dangerous – player easily has the capability to shoot twice before an enemy would do damage
    - Slows down progress considerably – trees take 8 shots to destroy
- Increase enemy health (20 -> 30)
    - Enemies still don't feel more dangerous, the player can still easily destroy them before they have a chance to attack
    - Trees aren't any harder to destroy, so progress is identical to before change
- Increase Charger enemy attack range (Alert range: 600 -> 800, Attack range: 300 -> 600, Attack speed scalar: 1.0 -> 3.0)
    - This succeeds in making charger bees more dangerous – They actually have to be dodged now, and when XL this is really difficult making for a fun trade-off between being big and doing more damage, but also opening yourself up to more attacks.
    - In conjunction with increased health, the player would struggle to shoot the charger bees out of the air – definitely more challenging.
- Increase enemy damage (Charger damage: 33 -> 40, Ranger damage 15 -> 20)
    - On its own, this change doesn't do much to make the game more challenging. Enemies are still too squishy, and far to easy to kill to make their damage mean anything.
    - Though in combination with other changes, this could be an important way to tune difficulty. With these damage numbers the player can take 3 charger hits, 2 charger hits and 1 ranger hit, 1 charger hit and 3 ranger hits, or 5 ranger hits, compared to 4 charger hits, 3 charger hits and 1 ranger hit, 2 charger hits and 3 ranger hits, 1 charger hit and 5 ranger hits, or 7 ranger hits.
        - This change doesn't do much for the chargers, but raises the potential threat of a ranger bee.
- Reduce rate of ally spawning (Universal spawn delay 15s to 20s)
    - This change makes ants slightly more rare – it would succeed in making the game slightly more challenging, but not in a noticeable way.

- What would be more noticeable and impactful is changing the rates at which different ants spawn – a full restore is just as likely as a simple med-pack. One should definitely be more common than the other.
- Due to time restraints, I cannot implement the more complex suggestions.

Results 1:

After this first pass, the most noticeable change was in modifying the attack range and speed of charger bees. This very clearly made an increase in difficulty, but in a way that felt more impactful than just a value change. It also felt like a change that did more than just increase difficulty – it made for more opportunities for player skill expression. They need to move more with more purpose but can also shoot down charging bees if they are able.

This change, in combination with increasing enemy health, and/or reducing player damage would definitely increase the challenge of the game.

Enemy spawns will also be altered – Ranger bees should not be spawned near the ground, and charger bees should not be spawned far in the air.

Ally spawns are also to be changed – more useful and powerful powerups should be rarer.

Final Changes:

- Make charger bees more dangerous
    - Increase alert range to 800 (was 600)
    - Increase attack range to 600 (was 300)
    - Increase attack speed by 3 times
- Increase enemy versatility
    - Charger Bee health increased to 30 (was 20)
    - Ranger Bee speed increased to 150 (was 100), alert speed factor increased to (0.8 was 0.5)
    - Ranger Bee attack range increased to 800 (was 400)
    - Ranger Bee projectile speed increased to 275 (was 100)
    - Ranger Bee rest times reduced across the board
        - The changes to the Ranger Bee make it harder to hit, and able to fire more than once as it passes across the screen
- Alter the ways that enemies and allies spawn
    - Charger bees won't spawn over 525 height, ranger bees won't spawn under 450 height
    - Ants are now ranked on importance and spawn with a frequency based on that rank.
        - Medpack, XS, and Fast Ants all spawn 20% of the time
        - Immunity and XL ants spawn 15% of the time
        - Full Restore ants spawn only 10% of the time
- Reduce boss health to 600 (was 1000)