

## Scaling in Descent: The Enduring Evil

One of the major motivations for creating *The Enduring Evil* was to fix problems in basic Descent with scaling to different sizes of games. This document explains how the scaling is intended to work, and what parts of the game still do not scale.

### Combat

The number of monsters preplaced on the map doesn't change depending on the game size. (Theoretically, it could, but that would be rather complicated, and inconsistent with basic Descent.) So in order to keep things balanced, we want a given group of monsters to pose the same challenge to the heroes regardless of game size. In particular, we want to make sure that, regardless of game size, (1) the heroes need to spend the same amount time to clear out the monsters, and (2) the heroes lose the same amount of conquest in the process.

Monsters in basic Descent have different stats for different game sizes, but the differences are small; +1 wound per monster per hero. And since even the strongest versions of monsters can often be killed in a single attack, this really doesn't do much.

Monsters in *The Enduring Evil* start out stronger and scale much more dramatically. In particular, most monsters are designed so that the number of attacks needed to kill one is roughly equal to the number of heroes in the game (on average). This calculation takes into account all defensive abilities—armor, deflection, fear, stealth, undying, etc. Of course, heroes do more damage as they get better equipment, so different monsters are calibrated to different treasure levels:

- Tier 1 is calibrated to shop weapons. Tier 1 includes beastmen, skeletons, and bane spiders. Kobolds count as half of a tier 1 monster, while blood apes and dark priests each count as two tier 1 monsters.
- Tier 2 is calibrated to copper weapons. Tier 2 includes ferrox, razorwings, hellhounds, sorcerers, and shades. Wendigoes each count as two tier 2 monsters.
- Tier 3 is calibrated to silver weapons. Tier 3 includes ogres, trolls, deep elves, manticores, naga, and medusae. Lava beetles each count as half of a tier 3 monster.
- Tier 4 is calibrated to gold weapons. Tier 4 includes giants, dragons, ice wyrms, demons, and chaos beasts. Golems also have defenses appropriate for a tier 4 monster, but much weaker offense.
- Master monsters are designed to take 50% more attacks to kill than normal monsters of the same type. Coincidentally, going up a tier usually increases overall monster survivability by about the same amount as turning a normal monster into a master.

The damage that monsters do does *not* scale. This is because the total conquest available to the heroes is the same in all game sizes, the conquest value of each hero stays constant, and the amount of damage needed to kill a hero also stays constant. In larger games, the overlord is supposed to get the same total number of kills as in a smaller game, just divided up between more heroes.

Each tier of monsters is designed to be effective against armor of the same treasure level as the weapons they're designed to withstand. Thus, getting hit by beastmen while wearing shop armor is supposed to be pretty similar to getting hit by a giant while wearing gold armor. This progression is fuzzier than monster defense, though, because hero armor is less granular, and defense upgrades for the heroes are less consistent.

Of course, all of this is just guidelines. Some attacks are much better against certain kinds of defenses than others, and there's a lot of variation in hero attack and defense due to base stats, skills, and the like.

## Overlord Threat and Cards

In basic Descent, the overlord gets more threat in larger games. I have decided that this doesn't make sense, and was probably tacked on to try to compensate for the fact that monsters *don't* scale. Most overlord cards already scale appropriately:

- Spawn cards create monsters, which already scale
- Cards that inflict damage don't need to scale, because the amount of conquest doesn't change
- Cards that create obstacles don't need to scale, because every hero has to deal with any obstacles that end up on the board
- Cards that give the overlord more cards or threat don't need to scale if the cards gained already scale

So in *The Enduring Evil*, the overlord collects a fixed amount of threat per turn. Setting the threat collected equal to the number of heroes was always a sham, anyway, since a large portion of the overlord's threat actually comes from discarded cards, so it only every *partially* scaled.

## Hero Wealth

The heroes, collectively, are expected to have wealth roughly proportional to the number of heroes in the game; or, looking at it another way, each hero should have the same wealth, no matter how many heroes there are. Each hero gets the same starting coins, and each hero benefits equally from chests and coin piles.

This works because each hero is expected to be individually just as effective, regardless of game size, and each piece of equipment is only usable by one hero at a time. Large parties need a separate weapon and a separate suit of armor for each hero; they need one vitality potion per hero to restore the whole party's fatigue, they need one invisibility potion per hero to force all enemies to roll the stealth die, and the amount of healing granted by healing potions now scales so that larger parties need one healing potion per hero in order to restore the same total amount of health (12, to be exact—or 10 in a 5-hero game, due to rounding).

## Dark Relics and Hexes

Dark relics, unfortunately, don't scale. They do things like make one hero's attack less effective, or prevent one hero from keeping up with the party, or damage the wealth of one hero, and all of those things have a smaller proportional effect in a large game.

Additionally, dark relics don't scale to game *length*, either. They only last until the affected hero dies, but nothing forces the overlord to kill the hero; furthermore, in a long game, the overlord can save up resources early on for a concerted attack later. This means that the penalties can last longer in long quests than in short ones.

So there are no dark relics in *The Enduring Evil*.

Instead, we have hexes. Hexes are similar to dark relics, in that the overlord can choose a specific one to put into play when he uses an appropriate treachery card, and they inflict nasty (albeit temporary) effects on heroes. However, unlike dark relics, hexes affect *all* heroes, so they're just as effective in large games. Also, instead of ending when a hero dies, a hex ends the next time the heroes activate a new glyph—so, typically about one area. Long quests have more glyphs, because they need to give the heroes more conquest and access to more places in the dungeon, so the duration of a hex is relatively consistent.

Hexes also have some nice evil properties. If you hex the heroes when there are no unactivated glyphs currently on the map, they're forced to decide whether to open up the next area early to try to end the hex, or live with the effects while they finish up the current area. If you hex the heroes a lot, they may stop activating glyphs so early—if they have a glyph handy that they can activate whenever they want, they're protected from hexes, but it also means that they don't get the conquest or the new portal in and out of the dungeon, which could be a problem if you start killing them. Don't you just love forcing the heroes to make hard choices?

## Things that Don't Scale

As much as I'd like everything in the game to scale perfectly, in some cases that's just not practical. The following have not been addressed:

### Action Negation

Effects or abilities that negate or weaken enemy actions, such as Daze, Stun, and Web, are more favorable to the heroes in large games. When the monsters inflict these effects, they inflict the same number of effect tokens, but each token takes away a smaller fraction of the hero team's actions. For example, a Stun token takes away one quarter of the actions of a two-hero team, but only one tenth of the actions of a five-hero team. (This doesn't necessarily apply if the status effect is inflicted in an area, or on all heroes.)

Similarly, overlord cards that can negate an action—for example, prevent a hero from attacking by surprising them with a trap that prevents them from getting in range or getting LOS—tend to be more effective in smaller games.

Conversely, when the heroes inflict these statuses, they can inflict more of them (because they have more actions) on the same number of monsters, which means they can effectively disable more monsters.

### Area Damage

Area damage is more favorable to the heroes in small games. When monsters make area attacks, they can't hit as many heroes at once (on average), because there are just fewer heroes to hit. But since the amount of damage monsters need to inflict is the same in all game sizes, this means they can reach their target faster in larger games.

Similarly, overlord cards that inflict damage in an area (such as Fireball) or allow a monster to make an area attack (such as Death Blossom) tend to work better in large games.

Conversely, when the heroes make area attacks, they're less likely to catch allies in the blast, and splitting damage between monsters is more useful because they tend to waste more damage on overkill (since each monster takes fewer total attacks to kill).

### Treasure Chests

Large parties need more treasures, and if treasures weren't random, or if heroes couldn't trade with each other, that would be the end of it. However, as it is, large parties have more opportunity to optimize their equipment by trading back and forth; it's less likely that no one will be able to use a given piece of equipment in a large party.

To try to compensate, I have made it so that curses still scale to game size (despite the fact that threat collected normally doesn't). Thus, large parties get slightly better treasure options, but they also cause the overlord to get more threat from chests with which to beat them back down.

### Spawning

Monsters can't spawn within the heroes' line of sight. More heroes can cover a larger area with their line of sight, making spawning harder.

However, it's a little more complicated than that. The main issue for monster spawning is whether or not you can attack with the monsters on the turn you spawn them. In order for heroes to cover a larger area with their line of sight, they have to spread out more, and as long as *one* of them is still on the fringe, near a spawnable area, the monsters can still attack.

Admittedly, it still gives the heroes more choice. In some dungeon layouts, having more heroes really does give you flat-out better protection, and even in a worst-case scenario, in a large party, a smaller fraction of the heroes need to go out of their way to cover LOS.

However, this issue is not as big as you might think. Spawning is less important in *The Enduring Evil* than in normal Descent, because the spawn cards are less powerful relative to other overlord cards, and they're also "bigger" (higher threat cost for more powerful monsters), which means you get a few major spawns rather than a constant stream of small ones—and that means you can be more choosy about when you spawn and when you don't.

## Running

If all the heroes need to go some place, things work fine, because large parties have more actions, but they also have more heroes to move, and things balance out nicely. However, when the party just needs *one* hero to run and do something for the group, such as activating a glyph or opening a chest, the large group is more efficient, because they spend a smaller fraction of their actions on the task.

In my estimation, this is probably the biggest advantage for large parties.

## Other

Larger parties need more potions to be effective, but the potions that appear in the dungeon don't scale to game size. Smaller parties can loot more potions per hero off the dungeon floor. Additionally, the token limits means that smaller parties can carry around more potions per hero at one time.

Larger parties need more coins to be effective, but master monsters give coins only to the single hero that kills them. This gives smaller parties a slight economic advantage.

If the heroes get Command, it helps larger parties, because it costs resources only for the hero that has it, but benefits everyone. Similarly, Freeze is better for the heroes in large games, because everyone can benefit from the monster's armor reduction.

There are a variety of other specific cards or quest rules that don't scale perfectly. The Caution skill is better in large games, because it costs a skill slot for only one hero but benefits everyone. The Mimicry skill is better in large games because there are more things you can mimic. Artifacts tend to be better for small parties, because a larger fraction of the heroes can utilize them.

## Overall

Overall, I think that large parties of heroes probably have a slightly easier time of it. But most of the non-scaling mechanics have only minor effects, and they cut in both directions. I think *The Enduring Evil* scales far better than normal Descent, and the main problem with large games is probably that they take longer, not that they're unbalanced.