



## **THE DISCOVERY OF FOUR NEW POPULATIONS OF BOG ELFIN IN EASTERN ONTARIO**

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For some time, many Ontario lepidopterists have believed that the Bog Elfin (*Callophrys lanoraieensis*) is confined to a limited number of bogs in the eastern portion of our province. This has been puzzling to some, since this species is more widespread in southern Quebec and the Maritimes. The larval host of this species is Black Spruce. What's wrong with the Black Spruce bogs elsewhere in Ontario? This article outlines the recent discovery of 4 new colonies for this species, which extends its known range further into the Ottawa valley by more than 200 km.



I will begin with a brief summary of the history of this species in Ontario. For a more detailed account of this early history, see Catling et al. 1998.

According to the Ontario Butterfly Atlas (Macnaughton et al. 2017)., the Bog Elfin was first found in Ontario in 1982, at the Alfred Bog (east of Ottawa). Using knowledge of the habitat at the type locality at the Lanoraie Bog in Quebec, aerial photographs of the Alfred Bog were examined to determine a likely location for the species there. On May 22, 1982, Ross Layberry, Don Lafontaine, Henri Goulet, Jim Troubridge, and Ian Jones found the Bog Elfin at this location deep in the Alfred Bog (Catling et al., 1998; Ross Layberry pers. comm. 2017).

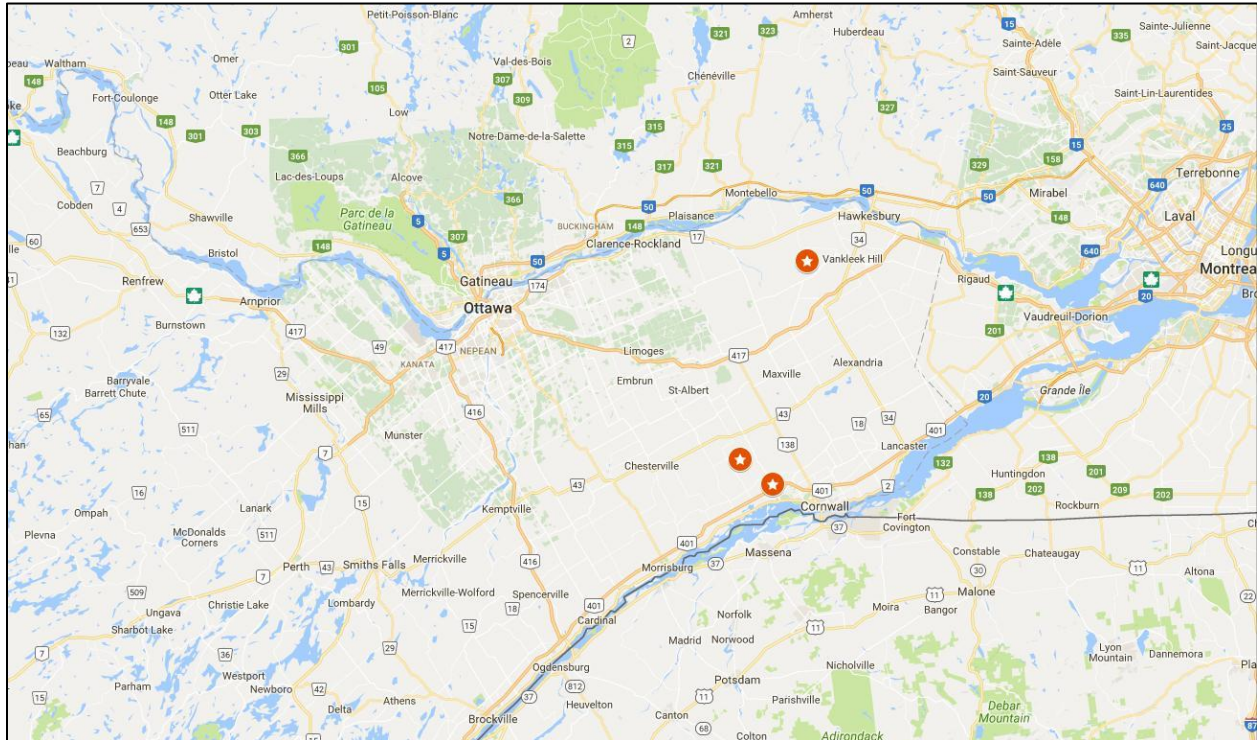
It was not until May 19, 1996 that a second colony was discovered near Newington, Ontario by Paul Catling. This area was subsequently visited by several observers and on May 27, 1997, Paul returned to Newington with Ross Layberry. After observing the Bog Elfin there, they examined the maps and noticed another large bog south of Black River (near Long Sault) and proceeded to find the Bog Elfin there as well. Ross visited this bog again a few days later, and again the following year (Ross Layberry pers. comm. 2017). As far as we know, there were no subsequent visits to this site until 2011.

At some point in the late 2000s, land ownership changes made the Alfred Bog inaccessible via the traditional route, and we know of no observations of the Bog Elfin there since 2007 (Peter Hall pers. comm. 2017). Despite being visited extensively by many area lepidopterists, the species has never been reported in the Mer Bleue bog near Ottawa. This may have contributed to the belief that for whatever reason, the Bog Elfin never penetrated into Ontario beyond the extreme eastern portion of the province.

Figure 1 displays the distribution for the Bog Elfin in Ontario since 1997.

In 2011, after observing the Bog Elfin at Newington, a group of us (myself, Ross Layberry, John Hall, and David Edwards attempted to find the Black River Bog site, where the species was last reported in 1997. Unfortunately, we were not able to locate the area where the Bog Elfin had been observed in the past. Between 2011 and 2016, all reported observations of the Bog Elfin in Ontario have been made in the Newington Bog.

When I first started pursuing butterflies in a semi-serious way, I was full of enthusiasm, and I ferreted out the locations of a number of bogs around Ottawa where I hoped to find various elusive bog specialists, including the Bog Elfin. Of course, knowing the location of a bog, and knowing how to safely access it are two different things. One should always exercise caution when visiting bogs. Floating bogs can be precarious. One misstep can land you in a future "bog person" display in a museum. Even drier bogs are often surrounded by moats or "lags", which can be hard to cross without making a "row vs wade" type choice. Getting lost is another concern when you are trying to work your way around water hazards and thick vegetation. In addition, bog trotting is hard work - stepping over hummocks on a yielding surface can be exhausting. Aside from these personal safety concerns, one should consider the impact one's visit will have on the habitat. Footprints in sphagnum moss are said to take decades to recover. Some folks who visit bogs regularly use modified snowshoes to minimize their impact.



**Figure 1. Bog Elfin distribution in Ontario since 1997 (Map data @2017 Google).**

Having a vague description of a route that someone followed decades ago doesn't guarantee that you will be able to follow it today. Even if a trail hasn't become overgrown, water levels vary from year to year. I made a few abortive attempts to visit some of the bogs on my list, and after learning more about the ranges of some of the species I had hoped to find, I began to feel that looking for these species locally was a bit naive. It all began to look like a wild goose chase, and the project ended up on the back burner.

Like other Ottawa area butterfly enthusiasts, I visited the Newington Bog a number of times to see the Bog Elfin. While ongoing monitoring of a known colony is desirable, it is easy to fall into a sort of habit and always go to the known location where you are reasonably sure to find the target species. While observers have been keeping an eye out for Bog Elfins when visiting other bogs in Eastern Ontario, we know of few targeted searches for new colonies. There is a positive side to repeatedly visiting a known site for a rare species - it helps you hone your skills at locating the species in question. You become familiar with its flight season, behaviour, and preferred habitat. It also relieves you of the burden of needing to find that elusive "lifer". If you've seen the species more than once, you are less likely to be tricked into believing an aberrant specimen of a more common species is the rarity you are seeking. Familiarity may not breed contempt in this case, but it can allow you to be more objective about your observations.

On May 20, 2016 a group of us (myself, Peter Hall, Maxime Larrivée, and Chris Schmidt) visited the Newington Bog. After viewing and photographing a number of Bog Elfins there, Maxime, Chris and I proceeded to the Alfred Bog to try to access it via a new route. Though it was a bit of a slog, we did eventually find our way out onto the open bog. Despite traversing promising habitat, we



failed to find any Bog Elfin there. We didn't make it all the way to the estimated coordinates of the old colony, but at least we established a viable route, and we can try it again in the future. I thought this would be the end of my encounters with the Bog Elfin for 2016.

The next morning, I set out for a camping weekend on the North side of Algonquin Park. Along the way I stopped to check out a hydro corridor with some rocky outcrops near Rolphton (West of Deep River). It looked like a promising site for barrens specialists such as *Olympia Marble*, *Chryxus Arctic*, and the like. As I crossed what I thought was a marshy area to get to the outcrops, I noted that despite the cattails, I was actually walking on sphagnum moss, and there was also Labrador Tea growing there. I must have been crossing some kind of fen or bog, with spruce trees on either side of the corridor. As I came to this realization, I flushed an Elfin from the low vegetation. In the cool morning air, the butterfly laboured to reach the nearby spruces. I assumed it was one of the more common elfin species, but it did look to be a bit on the small side. Curious to see which species it was, I followed it over to the trees. When it landed, I could not believe my eyes - it looked to be a Bog Elfin, over 200 km from the nearest known colony. It was on a spruce bough, at about eye level, and leaning over to catch the morning sun - not at an optimal angle for getting a good photograph. I got the best shots I could without disturbing it, and then I attempted to gingerly move the branch to get a better angle. Unfortunately, touching the branch caused it to fly away. I spent some time combing the area, but I could not find it, or any of its brethren.

Viewing the photo I got on a computer monitor, there's little doubt that it is a Bog Elfin, in spite of the awkward angle:



At the time, I could only view the photo on the small display on my camera, so I couldn't be certain of the ID (even though I have photographed this species several times before at Newington). I spent the rest of the weekend in Algonquin pondering that photo, trying to tease out the field marks, and cursing my inability to get a better shot. My one consolation was that I could stop at the site on my



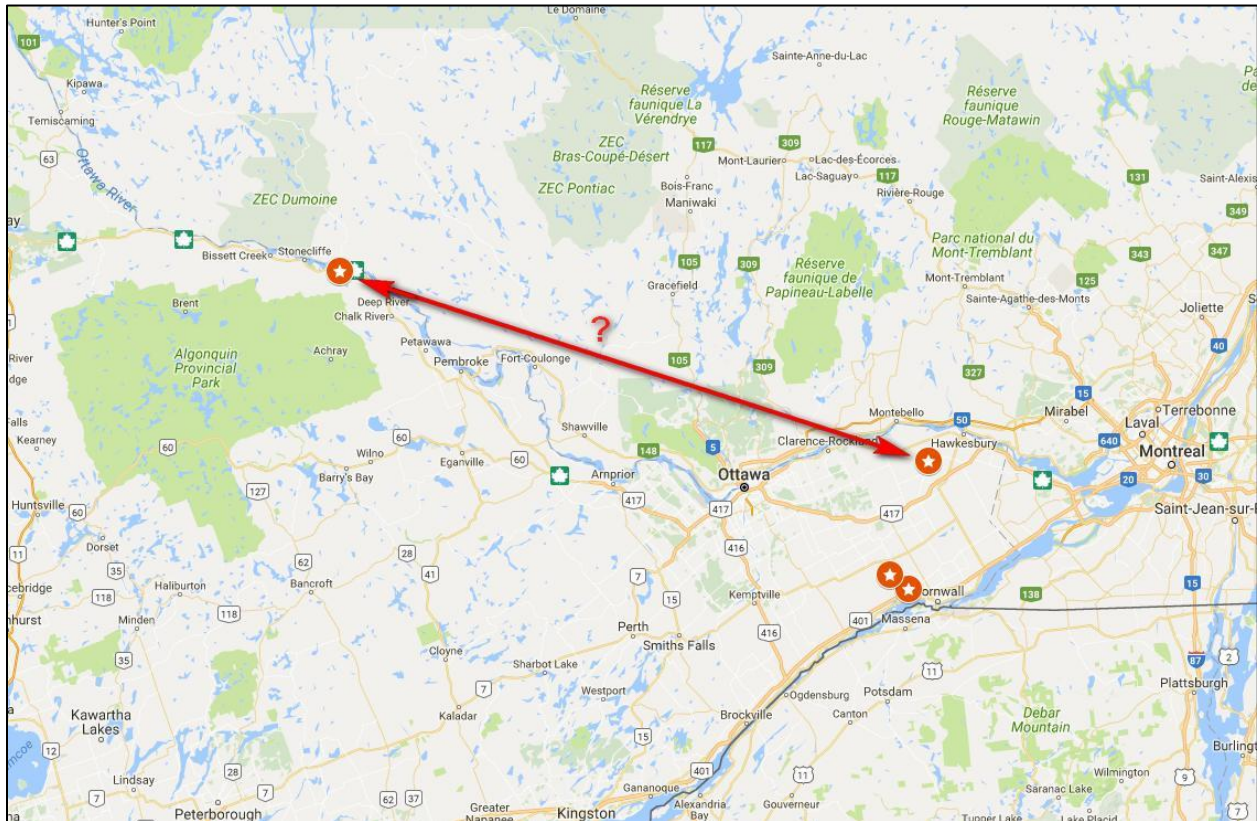


way back to Ottawa and try to get more convincing evidence. In the meantime, I visited a number of bogs in Algonquin Park, but I had no luck finding Bog Elfin there.

I just couldn't reconcile the huge range expansion implied by my observation (Figure 2).

By the end of the weekend, I had pretty much convinced myself that this putative Bog Elfin must be an aberrant Pine Elfin. I was sure that unless I could find several similar individuals, and get better photos of them, other lepidopterists would probably come to the same conclusion. After all, extraordinary claims should be supported by extraordinary evidence. So on my way home, I returned to the hydro corridor and almost immediately, I saw two small elfins chasing each other around that same spruce tree. They never came down to my level, so I had to settle for viewing them with binoculars and photographing them using a telephoto lens. Still, there could be no doubt. They were definitely Bog Elfins.





**Figure. 2 Implied range expansion of Bog Elfin based on 2016 observation (Map data @2017 Google)**

It was definitely worthwhile to go back and get the additional photos. But now that I had confirmed my observation, how to account for the vast gap in the distribution? Perhaps there isn't one - or at least, there wasn't one before various bogs between Alfred and Rolphton had been drained and turned into farmland. Perhaps the Bog Elfin once ranged all the way up the Ottawa Valley. What if there were still a few relict populations in some seldom visited bogs? With its short flight season of only about three weeks between late April and late June (most observations are made in the last two weeks of May), the Bog Elfin could easily be overlooked unless an observer was well acquainted with its habits and habitat preferences and conducted a deliberate search for it. And how many times has anyone conducted a careful, deliberate search for it outside its known range? It was only by dumb luck that I happened to stumble on this population near Rolphton.

I resolved to head for one of my "back burner" bogs in the Pembroke area. I had been there once, very briefly, and thought it wasn't terribly promising since the vegetation appeared to be dominated by Leatherleaf. I detoured directly there from Rolphton, to maximize the probability that the species would still be flying there. Upon arrival, I made a beeline for habitat that resembled the habitat preferred by the Bog Elfin at Newington, and after a bit of searching, I found several individuals. Again, I made sure I got reasonably good photos so that there would be no question about the ID.



Finding an intermediate colony between Alfred/Newington and Rolphton helped to fill in the distribution, but the gap was still vast. When I got home, I started to go over my maps, looking for other intermediate bogs. Though Mer Bleue was an obvious choice, it's very large, and access beyond the public boardwalk is not only difficult, but discouraged. I settled on another of my "back-burner" bogs near Perth. Some years ago, I had heard that there was a raised bog in the center of this swamp that could be accessed with a bit of bushwhacking. I tried to find my way into it several years ago, without success. On May 25, I returned armed with a GPS receiver and a bit more determination. I very nearly had to give up again, but I did eventually find my way onto the bog. I think it was fortuitous that it was somewhat overcast when I arrived. On some of the first Leatherleaf bushes I encountered, I found a few Bog Elfins nectaring, and was able to get unambiguous photographs. When the sun came out shortly thereafter, the elfins became much more evasive, and I often only caught glimpses of them as they darted away. I did not see any males perching or dog-fighting around the spruces, as they are wont to do at the peak of their flight season. I suspect that the flight season was nearly over at this location, and most of the individuals I encountered were females (in most butterfly species, females are more elusive than males). Had the elfins been more active when I first arrived, I might have attributed those fleeting glimpses to a more common Elfin species like the Brown Elfin (which was also present). This may partly account for the Bog Elfin being overlooked for so long.

On May 28, I visited the Long Swamp - a large fen near Almonte. I had heard that there was a bog-like area in the centre, and in the previous season, a group of Naturalists who were on an orchid hunt found Bog Copper there. Perhaps it was a bit too late in the season, or the fen did not have quite the right habitat for Bog Elfin, but I wasn't able to find any that day. The following day, a birder got a good photo of a Bog Elfin in a bog near Morewood, Ontario.

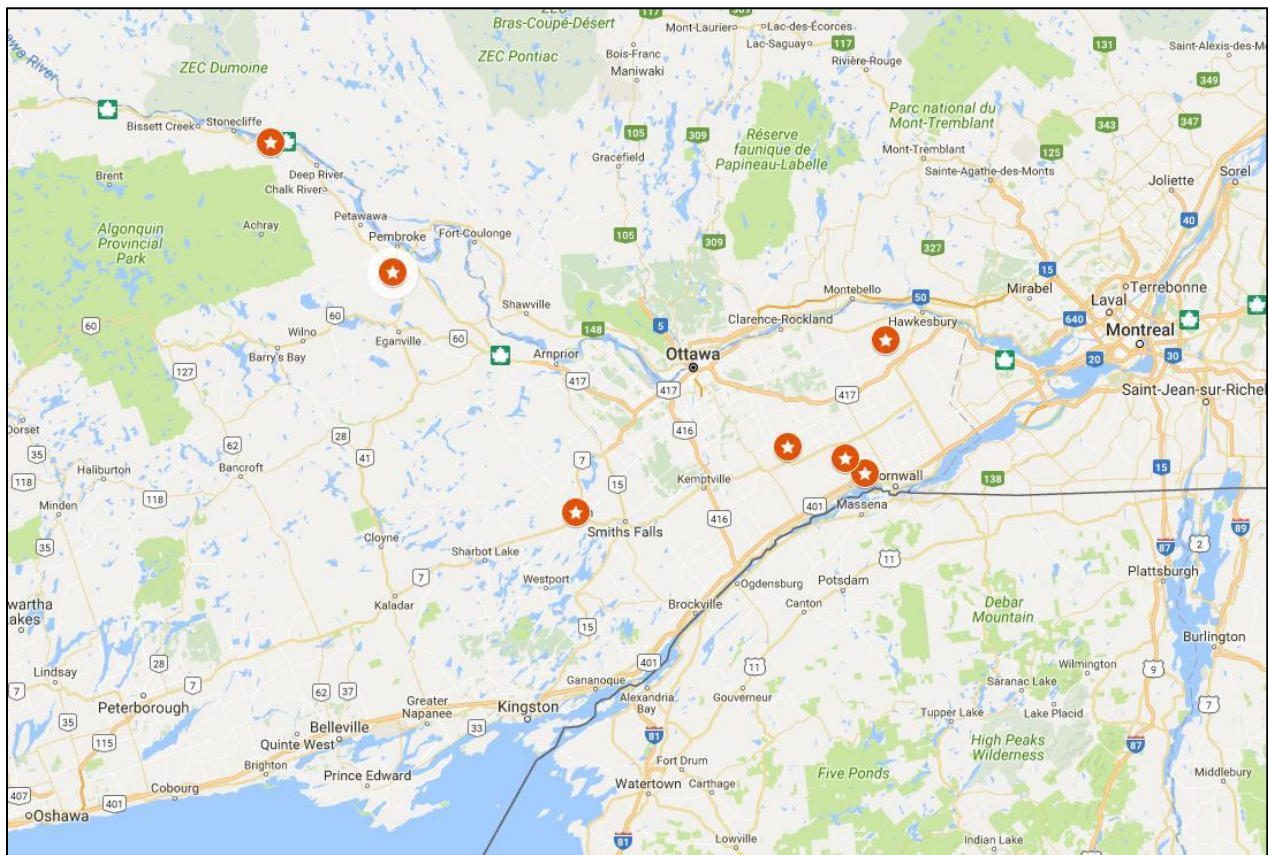




Figure 3 provides my understanding of the distribution map for the Bog Elfin in Ontario as of the end of May, 2016.

In a single season, the number of known populations of this species in Ontario was more than doubled. May 2017 will be busy as we try to flesh out the distribution, and if possible, extend it further to the west. Perhaps this species might even persist in Mer Bleue -- in some neglected corner of the bog that has never been surveyed at the right time of year. The bog is large and diverse and, as is the case with the Alfred Bog, the public boardwalk doesn't traverse ideal habitat for the Bog Elfin.

In theory, the Bog Elfin's range could extend deep into Ontario. Black Spruce, the species' larval host, is ubiquitous in Northern Ontario. On the other hand, one would think that if it is so widespread, it would have been found by now. It may be that it is too cold for the Bog Elfin in the far North. Or perhaps there was some barrier that prevented it from dispersing deep into Ontario at the time it originally found its way here (presumably from further to the east).



**Figure 3. Distribution map for the Bog Elfin in Ontario as of the end of May, 2016. (Map data @ 2017 Google).**

Although we have witnessed rapid range extensions for several species in recent years (e.g., Wild Indigo Duskywing, Giant Swallowtail), it seems highly unlikely that these newly discovered populations for the Bog Elfin are the product of a similar range extension. Pockets of suitable habitat are few and far between in Eastern Ontario, and further to the east, where the species is more





common, it is not normally found outside of bogs. The most likely explanation is that these populations have simply been overlooked for the reasons previously mentioned: the butterfly is inconspicuous and often elusive, it has a short flight season, and its preferred habitat is seldom visited by knowledgeable observers during that short flight season.

Eastern bogs feature a number of elements that are absent from bogs further to the west, and it is thought that the restricted range of the Bog Elfin may be part of this pattern (Catling and Brownell, 2001). Whether or not the discovery of these new populations represents a break in this pattern has not yet been determined, and the new sites should be evaluated with this in mind.

Based on my own limited experience with the species, it seems to be found in drier bogs as opposed to floating or quaking bogs. The Alfred Bog may be an exception, but I have never seen the part of the bog where the species was found in the past. The bog traversed by the Spruce Bog boardwalk in Algonquin Park is probably one of the most frequently visited bogs in the province and despite appearing suitable, the Bog Elfin has never been reported there. Taking all of this into account, I suspect the Bog Elfin's range in Ontario is largely confined to the Ottawa valley. Of course, it wasn't very long ago that I would have scoffed at the notion that the species would be found near Perth, or west of Deep River, so I wouldn't place a very heavy bet on this.

Further vindication of my past hopes for finding bog specialists in new locations came in recent years as various observers reported Jutta Arctic and Bog Fritillary at a number of new locations in Eastern Ontario. Each new observation serves as motivation to further exploration. It may be a long shot, but some of the locations where these species were found should also be checked for the Bog Elfin. Other bogs in Eastern Ontario that have likely never been surveyed for butterflies are also on our list. So many bogs - so few sunny days.

Those eager to join the search should note that the Bog Elfin is similar in appearance to the much more common Eastern Pine Elfin (though it is usually slightly smaller). Furthermore, the Eastern Pine Elfin seems to be quite variable, and a range of variants can often be found at any given location.

Images of both these species are provided on the back cover of this publication, and 3 of the main field marks are indicated.

Novice observers may be tempted to report any elfin that doesn't exactly match the photos they see in their chosen field guide. In addition to appearance, there are three things that should be considered when evaluating an observation:

1. Habitat: did it occur in or very close to a Black Spruce bog?
2. Range: how far is it from a known Bog Elfin population?
3. Timing: was the observation made during the known flight season for the species?

Obviously, clear photographic evidence goes a long way towards supporting an observation, as demonstrated by the observation at the Morewood Bog. Although the observation was made by someone who had never seen a Bog Elfin before, no quibbling was required for it to be accepted by others who had. This observation was made in a bog that featured Black Spruce, located not far



from another known colony. The observation was made well within the expected flight season for the species in that region, and the photo was unequivocal.

Reading this story, one may be tempted to conclude that we should put little faith in the published ranges for various species. On the contrary, I think the take-away should be that we should continue to investigate and test the boundaries of our knowledge, but we should also make sure we get good evidence to support observations that run contrary to conventional wisdom. Once a dubious observation is accepted for a particular location, it makes subsequent observations for that species in the area more plausible (possibly compounding the error). We still need to have healthy skepticism about unusual observations, and we should try to confirm anomalous observations that are already in the Atlas database.

**References:**

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