

English Holly (*I. aquifolium*) — Some key points

- **RELATIVELY SHORT-LIVED SEED BANK**

Most germination occurs within a year. After three years seed banks are reduced by 80-90 percent (Sagrario & Francisco 2004, Boersma et al 2006). Germination tends to be highest along forest edges although seeds do not need light to germinate (Sagrario & Francisco, 2004).

- Major invasive disruptor of the Garry Oak and Fir ecosystems
- Cut stumps sucker profusely.
- English holly has become a serious invasive because of its adaptability to grow in shade or sun, and how easy its seeds are spread by birds. It will crowd out native species as well as monopolize groundwater.

Invasive Species Council of B.C.

<https://bcinvasives.ca/invasives/english-holly/>

- Toxic to humans.

CRD

https://www.crd.bc.ca/docs/default-source/default-document-library/2019-03--regional-priority-invasive-species-list.pdf?sfvrsn=836aceca_0

Andy I. Berger — *SOIL IMPACTS DUE TO THE INVASION OF ILEX AQUIFOLIUM . . .*

file:///C:/Users/Neil/AppData/Local/Temp/36-I-97-I-10-20170227-I.pdf

- has the ability to readily establish itself in otherwise undisturbed forests.
- has the capability of significantly affecting species composition and ecosystem function in native forests.
- lives up to 250 years in its home range.
- our results suggest a significant impact to the soil chemistry due to *I. aquifolium*. On average we found 15% more sulfur beneath the canopy. (See Stokes & Church bullet 2 below).

David L. Stokes and Elliot Church, et al. — *PICTURES OF AN INVASION*

https://www.researchgate.net/publication/269552305_Pictures_of_an_Invasion_English_Holly_Ilex_aquifolium_in_a_Semi-Natural_Pacific_Northwest_Forest

- holly is proliferating and spreading rapidly at two scales: contiguous, primarily vegetative, expansion of tree clumps, and long distance dispersal via seed. Spread by both mechanisms appears to be accelerating, with population and canopy area both increasing approximately exponentially, having doubling times of approximately 6 and 5 years respectively.
- Native vegetation was greatly reduced under holly canopy.
- The population is growing rapidly as a result of high rates of establishment and very low rates of mortality.

Reproduction and Spread

- Reproduces by seed and vegetatively by layering (Stokes et al 2014).
- Branches or stems pressed to the ground will form roots and new branches (Stokes et al 2014).
- Dioecious (separate female and male plants). Berries are generally ripe around October and remain on the plant through the winter (Zika 2010, Boersma 2006). Female plants begin producing berries at about 15 years old although some may produce fruit at a younger age (Boersma et al 2006).
- One tree may produce 120,000 seeds a season (Peterken & Lloyd 1967).
- Berry production increases with available sunlight, in deep shade it produces fewer berries (Church 2016).
- Birds feed on the berries then move to another location and regurgitate the seeds, spreading English holly into new areas (Boersma et al 2006, Zika 2010).
- According to a study by Peter Zika, 99 percent of the fruit is consumed in a single season, mainly by American robins (*Turdus migratorius*) (Zika 2010). Rodents are attracted to the seeds and will consume them, destroying the seed. However this effect is limited in urban areas, possibly due to predators (Zika 2010).
- Plants are long lived and can survive past 250 years (Peterken & Lloyd 1967, Boersma et al 2006).
- Presence in forest habitats may go unnoticed or seem benign until the population enters a rapid expansion phase (Frappier et al. 2003; Wangen and Webster 2006; Webster and Wangen 2009)
- Shade-tolerant woody invasive plant species make up a significant part of the diverse suite of invasive species threats to sustainable management of commercial forestlands in North America (Moser et al. 2009).

Andy I. Berger (from page 1)

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The following images are evidence that native vegetation is greatly reduced under mature holly trees. Keep in mind, the mortality rate of holly is very low and there are many thousands of small holly in CRD parks that will quickly grow into large ones if not removed.

DEAD ZONE 1

Metchosin Park. Treatment date: May, 2021

This dead zone involved one large, but still growing, tree that we limbed to prevent the lower branches from layering in May of 2020. **ABOVE** is of a site visit with UVic Director of Natural Systems Nancy Shackleford Phd. who, along with James Miskelly, have acted as consultants to MISC. **BELOW** is a site visit with MLA Mitzi Dean and Metchosin Mayor Marie-Térèse Little Phd. (Biology) who has attended multiple MISC work parties.





DEAD ZONE 2

Eleanor Mann Park.

Treatment date: April 29, 2023

This was a large, dense, patch of holly in a seasonal creek/riparian area with many trunks. Most of what is under the dead holly is also dead zone.





DEAD ZONE 3

Eleanor Mann Park.

Treatment date: April 29, 2023

This dead zone involved two trees and is a short distance from zone 1, downstream and along the edge of the same seasonal creek.



DEAD ZONE 4

Metchosin Park.

Treatment date: May, 2021

This dead zone involved two trees. As you can see, after more than 2 years there is little sign of natural regrowth.





DEAD ZONE 5

Metchosin Park.

Treatment date: May, 2021

This dead zone involved approximately 6 juvenile trees (up to about 15 feet tall) and is a short distance from dead zones 6 and 7. As you can see, after more than 2 years there is little sign of natural regrowth.



DEAD ZONE 6

Metchosin Park.

Treatment date: May, 2021

This dead zone involved two juvenile trees and is a short distance from dead zones 5 and 7. As you can see, after more than 2 years there is little sign of natural regrowth.





DEAD ZONE 7

Metchosin Park.

Treatment date: May, 2021

This dead zone involved two juvenile trees and is a short distance from dead zones 5 and 6. As you can see, after more than 2 years there is little sign of natural regrowth.

