
Essay

Regulating Pollen

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The most common allergen is pollen, and pollen causes the most common allergy, known as “hay fever.” While pollen allergies might appear to be the unavoidable cost of living with flowering plants, the suffering engendered by pollen allergies is largely our own creation. Plants will always flower, but people have built a world that increases the harm we suffer from pollen.

Reducing much of the human suffering caused by pollen allergies simply requires removing certain allergenic plants from cities and replacing them with less allergenic species near where we live and work. Instead, governments and nurseries have encouraged planting some of the most allergenic species in large numbers, even near our homes and schools. Several cities already regulate allergenic plants, but government can do more to reduce pollen allergies.

This Article proposes increased government regulation of allergenic plants as a low-cost method of reducing the suffering and the cost of pollen allergies. Private litigation is the more costly approach, but it could encourage additional regulation and do real good in a world suffering from pollen allergies.

I. POLLEN ALLERGIES

Nine percent of children and seven percent of adults report suffering from pollen allergies.¹ Pollen allergies motivate more

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1. BARBARA BLOOM, ROBIN A. COHEN & GULNUR FREEMAN, NAT'L CTR. FOR HEALTH STATISTICS, CTRS. FOR DISEASE CONTROL & PREVENTION, U.S. DEPT OF HEALTH & HUMAN SERVS., SUMMARY HEALTH STATISTICS FOR U.S. ADULTS: NATIONAL HEALTH INTERVIEW SURVEY, 2011, at 11 tbl. 2 (2012); JEANNINE S. SCHILLER, JACQUELINE W. LUCAS & JENNIFER A. PEREGOY, NAT'L CTR. FOR HEALTH STATISTICS, CTRS. FOR DISEASE CONTROL & PREVEN-

than one percent of all doctors' visits, which include millions of well-child visits, annual screening, and pre- and post-operative visits.² Since many people with mild pollen allergies do not seek treatment, the true prevalence of allergies is substantially higher.³

Recent studies suggest that more people are afflicted with pollen allergies than in the past,⁴ in part because pollen season is now four weeks longer than it was fifteen years ago, possibly as a result of climate change.⁵ According to some estimates, in 1959, fewer than five percent of Americans suffered from allergies; by 1985, the figure was fifteen percent, jumping to forty percent today.⁶

The amount of money Americans spend to treat pollen allergies has grown substantially.⁷ The cost of allergy and asthma medications is increasing sharply, meaning that total treatment costs will increase further.⁸ The opportunity cost of pollen allergies—missed work and reduced productivity—is even greater. According to one study, the average worker diagnosed with allergies reports missing about fifty hours over the course of the year due to allergic reactions.⁹ In the aggregate, approximately eleven million workdays are lost because of hay

TION, U.S. DEP'T OF HEALTH & HUMAN SERVS., SUMMARY HEALTH STATISTICS FOR U.S. ADULTS: NATIONAL HEALTH INTERVIEW SURVEY, 2011, at 25 tbl. 4 (2012).

2. SUSAN M. SCHAPPERT & ELIZABETH A. RECHTSTEINER, NAT'L CTR. FOR HEALTH STATISTICS, CTRS. FOR DISEASE CONTROL & PREVENTION, U.S. DEP'T OF HEALTH & HUMAN SERVS., AMBULATORY MEDICAL CARE UTILIZATION ESTIMATES FOR 2007, at 20 tbl. 6 (2011).

3. The actual prevalence may be as high as forty percent. Sheryl L. Szeinbach et al., *The Impact of Allergic Rhinitis on Work Productivity*, 16 PRIMARY CARE RESPIRATORY J. 98, 98 (2007).

4. M. Innes Asher et al., *Worldwide Time Trends in the Prevalence of Symptoms of Asthma, Allergic Rhinoconjunctivitis, and Eczema in Childhood: ISAAC Phases One and Three Repeat Multicountry Cross-Sectional Surveys*, 368 LANCET 733, 741 (2006).

5. G. D'Amato et al., *Allergenic Pollen and Pollen Allergy in Europe*, 62 ALLERGY 976, 983–84 (2007).

6. THOMAS LEO OGREN, SAFE SEX IN THE GARDEN 11 (2003) (hereinafter OGREN, GARDEN).

7. In 2005, total medical spending was \$11.2 billion, almost twice what it had been five years earlier. ANITA SONI, MED. EXPENDITURE PANEL SURVEY, AGENCY FOR HEALTHCARE RESEARCH AND QUALITY, STATISTICAL BRIEF NO. 204: ALLERGIC RHINITIS: TRENDS IN USE AND EXPENDITURES, 2000 AND 2005, at 1 (2008).

8. Elisabeth Rosenthal, *The Soaring Cost of a Simple Breath*, N.Y. TIMES, Oct. 13, 2013, at A1.

9. Szeinbach et al., *supra* note 3, at 100.

fever.¹⁰ Even when allergic employees are at work during pollen season, their productivity declines substantially, both because of allergies and because of the medication used to treat their symptoms.

Pollen allergies give rise to complications from other ailments. Many people with asthma suffer from pollen allergies,¹¹ and pollen can trigger an asthma attack. Each year, more than 3400 people in the U.S. die from asthma itself.¹² But even those of us without asthma can die from pollen. Mortality rates increase significantly on days with high pollen counts, even for diseases unrelated to pollen.¹³ Also, strokes are more frequent on days with more pollen in the air.¹⁴

As with most things, the dose is what determines whether pollen is beneficial, benign, or harmful. Small doses, like what one would receive in a natural environment, may stimulate the immune system in a good way. But people have created an unnatural environment that produces more pollen than is good for anyone.

II. LITTER-FREE TREES AND BOTANICAL SEXISM

While many flowering plants release pollen, seasonal allergies are largely caused by trees and grass. Trees have more flowers than smaller plants, and grass covers so much of our environment that the cumulative impact of its pollen is large. Among grasses, Bermuda grass is the worst offender. Bermuda grass is popular across the southern United States, from Florida to California, largely because it is durable and recovers

10. Neil Bhattacharyya, *Functional Limitations and Workdays Lost Associated with Chronic Rhinosinusitis and Allergic Rhinitis*, 26 AM. J. RHINOLOGY & ALLERGY 120 (2012).

11. I. Annesi-Maesano, *Epidemiological Evidence of the Occurrence of Rhinitis and Sinusitis in Asthmatics*, 54 ALLERGY 7 (Supp. 1999).

12. LARA J. AKINBAMI, JEANNE E. MOORMAN & XIANG LIU, NAT'L CTR. FOR HEALTH STATISTICS, CTRS. FOR DISEASE CONTROL & PREVENTION, U.S. DEPT OF HEALTH & HUMAN SERVS., NATIONAL HEALTH STATISTICS REPORTS: ASTHMA PREVALENCE, HEALTH CARE USE, AND MORTALITY: UNITED STATES, 2005-2009, at 5 (2011).

13. Cardiac deaths rose six percent while pulmonary deaths rose fifteen percent. Brunekreef et al., *Relation Between Airborne Pollen Concentrations and Daily Cardiovascular and Respiratory-Disease Mortality*, 355 LANCET 1517, 1517 (2000).

14. Ronald B. Low et al., *The Relation of Stroke Admissions to Recent Weather, Airborne Allergens, Air Pollution, Seasons, Upper Respiratory Infections, and Asthma Incidence, September 11, 2001, and Day of the Week*, 37 STROKE 951, 956 (2006).

quickly, making it perfect for sports fields. Bermuda grass can pollinate when very short, so even regular mowing does not reduce the amount of pollen it generates. In contrast, rye or fescue will not flower unless allowed to grow a foot or more—a height rarely seen on suburban lawns.¹⁵

Urban planners and (most) city dwellers love trees. Trees improve air quality, cool and shade sidewalks, and may even reduce crime.¹⁶ But certain flowering trees are also the leading cause of pollen allergies. Not all pollen is created equal. Some pollen is more allergenic because of its size or structure. Smaller pollen tends to provoke a stronger reaction because smaller pollen grains penetrate deeper into the lungs. Other pollen provokes a stronger reaction because of the specific proteins on its surface. The average pollen grain is twenty microns in diameter, meaning that a thousand pollen grains can enter through each square of a window screen simultaneously.¹⁷ Window screens offer virtually no protection from pollen.

Only certain trees flourish in the difficult urban environment, so people are eager to plant those trees. Cities are hotter, drier, and often polluted, making for a difficult environment for trees. The suburbs are less challenging, but many trees are still poor choices for where people live. The best trees grow in predictable shapes and rarely shed branches without warning. None of these characteristics produce more allergies. But people look for one more attribute that often corresponds with more pollen; people prefer trees that produce fewer nuts and fruits to clean up. Unfortunately, many of the trees that produce no fruit produce an abundance of allergenic pollen. Some of the worst offenders are male trees, frequently planted because they are “litter-free.” However, “litter-free” is a misnomer, since those trees produce plenty of microscopic litter, i.e. pollen.

Schools often have the most allergenic plantings. Schools have planted litter-free trees, often without the variety that homeowners prefer. While a homeowner might plant one or two trees of the same cultivar, a school might plant a dozen or more, usually litter-free, but highly allergenic. Pollen counts in

15. THOMAS LEO OGREN, ALLERGY-FREE GARDENING: THE REVOLUTIONARY GUIDE TO HEALTHY LANDSCAPING 86–87, 103 (2000) (hereinafter OGREN, GUIDE).

16. See Geoffrey H. Donovan & Jeffrey P. Prestemon, *The Effect of Trees on Crime in Portland, Oregon*, 44 ENV'T & BEHAV. 3 (2012).

17. OGREN, GARDEN, *supra* note 6, at 15.

some elementary schools reach 60,000 pollen grains per cubic yard of air.¹⁸ More than one thousand grains is considered high, although some allergy sufferers can react to as few as fifty grains.¹⁹ Not surprisingly, children suffer from pollen allergies at higher rates than adults.²⁰

The amount and characteristics of pollen depend on the flowers that generate it.²¹ Only male flowers and male parts of flowers produce pollen. All flowers are either perfect or incomplete. A perfect flower has both male and female parts. In a perfect flower, pollen travels no more than an inch from male to female to pollinate. An incomplete flower is either male or female, although the plant that produced the flower might have flowers of both sexes. Some trees with incomplete flowers are separate-sexed, meaning that each tree is either male or female. Female clones fruit, while male clones of separate-sexed trees produce no seeds, nuts, or fruit, making them the favorites of urban planners. While these male clones produce no seeds, they produce substantially more pollen than dual-sexed trees. Additionally, the pollen tends to be much smaller, so that it can travel farther to find a female tree of the same species. Smaller pollen generates more severe reactions since the grains travel deeper into the lungs.

The pollen of most perfect flowers hardly travels, since the female parts are within the same flower. Common trees with perfect flowers include dogwood, crabapple, redbud, magnolia, flowering pear, plum, and hawthorn. These trees tend to have heavy, sticky pollen and rely on insect pollination. As a by-product, these trees cause little allergy suffering.²²

Some plants with incomplete flowers have both male and female flowers, while other species are either male or female. Most trees with both male and female flowers, including syc-

18. *Mulberry Trees Produce Record Pollen Count*, LAS VEGAS SUN, Mar. 25, 1998, at 3B.

19. *Id.*; D'Amato et al. *supra* note 5, at 977.

20. About nine percent of children were diagnosed with hay fever in 2011. BARBARA BLOOM, ROBIN A. COHEN, & GULNAR FREEMAN, NAT'L CTR. FOR HEALTH STATISTICS, CTRS. FOR DISEASE CONTROL & PREVENTION, U.S. DEPT OF HEALTH & HUMAN SERVS., SUMMARY HEALTH STATISTICS FOR U.S. CHILDREN: NATIONAL HEALTH INTERVIEW SURVEY, 2011, at 11 tbl. 2 (2012).

21. For detail on the characteristics of more and less allergenic trees, see OGREN, *supra* note 6, at 40–45.

22. OGREN, GARDEN, *supra* note 6, at 21, 41.

more, sweetgum, and alder, are moderately allergenic. One notable exception is birch, which is highly allergenic.²³

Separate-sexed species have either male or female flowers, but never both on the same plant. Separate-sexed plants often rely on wind pollination, producing much more pollen and smaller pollen grains. To reach a female plant of the same species, entirely male plants produce massive amounts of tiny pollen, which happen to torment allergy sufferers. Separate-sexed trees include ash, poplar, willow, cedar, juniper, cottonwood, mulberry, box elder, holly, yew, willow, Chinese ginkgo, and smoke tree.²⁴

Fifty years ago, city trees were like country trees: roughly half of them were male. But the nursery and government preference for litter-free trees means that most trees planted in the last fifty years are highly allergenic male clones. The preference for male plants, often to the complete exclusion of female plants, is called “botanical sexism.”²⁵ Dutch Elm disease accelerated the emergence of botanical sexism, as the dying elm trees with perfect flowers, at one time common in cities, were replaced with more pernicious male clones of separate-sexed trees. The increase in pollen allergies follows the path of Dutch Elm disease, starting in the eastern seaboard and reaching the Pacific coast fifteen years later.²⁶ Planting male clones is only part of botanical sexism. Starting in the 1950s, most self-planted female seedlings were actually cut down, while male seedlings were spared.²⁷

Planting and culling are only part of the story. Nurseries have produced entirely new clonal trees, unknown to nature. For example, the honey locust has both male and female flowers and always makes seedpods, if left to its own devices. But nurseries have produced and aggressively marketed entirely male honey locust clones, which produce more pollen than trees

23. *Id.*

24. *Id.*

25. Paloma Cariñanos & Manuel Casares-Porcel, *Urban Green Zones and Related Pollen Allergy: A Review. Some Guidelines for Designing Spaces with Low Allergy Impact*, 101 *LANDSCAPE & URBAN PLANNING* 205, 210 (2011).

26. Not only do perfect flowers shed less pollen, elm trees rely on insect pollination rather than wind pollination, which often corresponds with less allergenic pollen. OGREN, *GARDEN*, *supra* note 6, at 12, 50–52.

27. *Id.* at 13–14. It is distressing that nurseries and governments did this, even though much of the underlying botany was well-understood by then. *See, e.g., Hay Fever*, in 14 *THE ENCYCLOPEDIA AMERICANA* 14 (1920).

with both male and female flowers.²⁸ These male trees are sold as “podless,” rather than the more accurate “podless, but highly allergenic.”

The harm of botanical sexism is not just that there are more male trees, but that there are fewer female trees. Female trees provide several benefits. Pollen develops a slight positive charge as it floats in the air, while female flowers produce a slight negative charge, which attracts pollen.²⁹ Unfortunately for us, humans also produce a slight negative charge. Thus, planting more female trees would clean the air without relying on our noses to trap pollen. In addition, male trees produce no berries for songbirds and little or no nectar for butterflies and hummingbirds.³⁰ Botanical sexism has made us sick, all the while starving wildlife out of our cities.³¹

The current landscape of highly allergenic trees in cities and suburbs is not inevitable. There are plenty of no- or low-pollen trees that thrive in the city. Sadly, nurseries and local governments have paid no attention to the allergy consequences of their landscaping decisions, planting many trees that produce large amounts of allergenic pollen.

III. PRIVATE REMEDIES PROVIDE LITTLE RELIEF

Pollen allergy sufferers can replace more allergenic with less allergenic plants around their homes. However, there is only so much individual action can accomplish. Drifting on the wind, pollen does not respect property boundaries. Individual grains of pollen can travel for miles, but most pollen falls to the ground close to where it originated. Thus, plants close to home, school, and work trigger allergies. The closer the allergy sufferer is to the offending plants, the greater the exposure and the worse the reaction; this effect is called “proximity pollinosis.”³² The silver lining of proximity pollinosis is that alleviating allergy symptoms does not require removing all allergenic plants, but rather just those near where people live.

28. OGREN, GARDEN, *supra* note 6, at 53.

29. *Id.* at 14. Also, the shape and stickiness of female flowers catches pollen.

30. *Id.*

31. There are a few plants with pollen that is poisonous, not allergenic. Poisonous pollen will make anyone sick, not just those who are sensitive. Yew and *Podocarpus* pollen is poisonous, yet both are often used in landscaping. In contrast to classic allergy symptoms, the symptoms of inhaling *Podocarpus* are similar to a sore throat. *Id.* at 105–07.

32. Cariñanos & Casares-Porcel, *supra* note 25, at 211.

Private nuisance suits are unattractive, for a variety of reasons. Perhaps the most significant hurdle for plaintiffs is that pollen allergies are common, but not universal. Nuisance protects the ordinary landowner, but provides no remedy for those with a special sensitivity to the harm. The question of whether those with pollen allergies have a special sensitivity appears to be unlitigated to date. To avoid these defenses, plaintiffs may prefer to sue for trespass. After all, the plaintiff would suffer no harm if the defendant kept his chattels confined to his own land.

In addition to common law property claims, federal (and similar state) disability law provides a remedy, at least for defendant landowners subject to those laws. The Americans with Disabilities Act requires most businesses and institutions to provide reasonable accommodation for persons with disabilities.³³ Pollen allergies can be disabling, even when treated with medication. Whether removing allergenic plants is a reasonable accommodation appears to be a question of first impression. The cost of removing allergenic plants can be large, but rarely will exceed the cost of other accommodations, like installing ramps or accessible bathrooms.

The most likely, and most likely successful, lawsuits will be those directed at schools. Schools often have highly allergenic landscaping. Schools are likely to settle because the costs of replacing the allergenic trees will not be borne by the person deciding to settle. Unlike neighbors, schools are subject to the ADA and Section 504 of the Rehabilitation Act.³⁴ Both the ADA and Section 504 require schools to accommodate children with disabilities, including pollen allergies.³⁵

While suing individual landowners may provide plaintiffs with localized relief, allergy sufferers should also consider class actions directed at the large commercial nurseries.³⁶ It is no secret that certain male clones are more allergenic, and harm to allergy sufferers is obvious. Nurseries could grow and sell fe-

33. Americans with Disabilities Act, Pub. L. No. 101-336, 104 Stat. 327 (1990). In 2008, Congress amended the definitions of disability and major life activity to protect a broader class of physical differences. ADA Amendments Act of 2008, Pub. L. No. 110-325, 122 Stat. 3553.

34. Rehabilitation Act of 1973, Pub. L. No. 93-112, 87 Stat. 355 (codified as amended at 29 U.S.C. §§ 701-796 (2006)).

35. See, e.g., *E.E.O.C. v. United Parcel Serv., Inc.*, 249 F.3d 557 (6th Cir. 2001). As in many cases, that the plaintiff's allergies are a disability is almost assumed.

36. My thanks to Tom Ogren for this suggestion.

male clones, but choose to sell males clones. Even if that choice is insufficient to create liability, nurseries that grow novel clones should be liable. Nurseries do more than selectively breed and sell male clones of allergenic species: nurseries have artificially created all-male clones of trees that are otherwise dual-sexed. For example, the all-male honey locust does not exist in nature and produces more pollen than a natural honey locust. As manufacturers, the wholesale nurseries should be liable for introducing into the stream of commerce a product that they know (or should know) will harm many of their customers and third parties.

Pollen allergy litigation will be expensive and time-consuming. Doctors can establish which pollen allergy the plaintiff suffers from, but only field tests can show that the defendant's property is the source of the pollen. If plaintiffs target nurseries and seek only an injunction blocking the further sale of allergenic clones, then time-consuming litigation over causation and damages can be avoided.

Although pollen allergies have generated no published cases in the United States, there is some precedent for liability for pollen drift. In Illinois, farmers sued a seed company after pollen from genetically modified corn blew onto their fields.³⁷ The court held that a jury could find pollen drift to be a private or public nuisance.³⁸ In Missouri, rice growers filed a similar lawsuit.³⁹ The court found that the plaintiffs had not shown that pollen from genetically modified rice was sufficiently harmful to be a public nuisance, but allowed the private nuisance claim to proceed.⁴⁰ Since allergenic pollen harms many people in clearly demonstrable ways, plaintiffs should be able to overcome obstacles presented in other pollen drift cases.

IV. APPROACHES TO MUNICIPAL REGULATION

Since a few common clones produce the most allergies, public regulation could relieve a lot of suffering at low cost. For government, there are three doctrines to support regulation: zoning, nuisance, and the police power. A few cities already regulate allergenic plants.

37. *In re StarLink Corn Prods. Liab. Litig.*, 212 F. Supp. 2d 828, 844–48 (N.D. Ill. 2002).

38. *Id.* at 844–48.

39. *In re Genetically Modified Rice Litig.*, 666 F. Supp. 2d 1004 (E.D. Mo. 2009).

40. *Id.* at 1018–19.

A hundred years ago, Arizona was considered a haven for allergy sufferers, but no more. Several million people moved to Phoenix and Tucson in the last six decades, and many planted familiar trees. By 1970, Tempe (part of greater Phoenix) enacted a zoning ordinance that did not allow developers to plant pollen-producing olive or mulberry trees, but individual landowners were permitted to continue planting mulberry and olive trees.⁴¹ Both the mulberry and the olive are highly allergenic.

In addition, Phoenix and Tucson restrict allergenic plants through the power to declare and abate public nuisances. In both cities, the planting or sale of male mulberry or olive trees is a nuisance.⁴² In 1995, the Tucson ordinance was amended to allow planting two varieties of olive that produce less pollen. Also, in Tucson, allowing Bermuda grass to pollinate is a nuisance, which can be prevented by mowing often.

Other cities have relied on the police power to prohibit planting certain trees. For example, planting or selling certain trees in Albuquerque is a misdemeanor.⁴³ Albuquerque bans the largest number of plants, including male cypress, juniper, mulberry, most poplars and cottonwoods, and most male elms. Certain less allergenic trees may be sold, but must be sold with an individual label warning of the trees' pollen production.

Las Vegas, Nevada restricts certain allergenic trees as part of its air quality regulation.⁴⁴ Since 1991, no one may plant or sell male mulberry or European olive trees within Las Vegas. Commercial growers may apply for an exemption from the Air Pollution Control Board for low-pollen cultivars.

Whatever form regulation takes, no local government has required landowners to *remove* allergenic plants. Since only new plantings are restricted, the amount of pollen in the air will decline only slowly. For example, Albuquerque enacted its pollen control ordinance in 1994, but pollen counts remain high.⁴⁵ Since trees live for decades, several human generations can expect to suffer from past botanical mistakes.

41. TEMPE, ARIZ. ZONING & DEVELOPMENT CODE § 4-702 (2005).

42. PHOENIX, ARIZ. CITY CODE § 39-9 (2013); PIMA COUNTY, ARIZ. CODE OF ORDINANCES ch. 7.41 (1991).

43. ALBUQUERQUE, N.M. CITY ORDINANCES § 9-12 (1994).

44. CLARK COUNTY, NEV. AIR QUALITY REGULATIONS § 44 (2004).

45. Jeff Brady, *Morning Edition: Albuquerque Sees No Letup in Pollen Despite Law* (National Public Radio broadcast Apr. 21, 2010).

V. A CALL TO ARMS

Pollen allergies are remediable, if not largely preventable. Furthermore, state and local governments have the power to regulate allergenic plants, relying on zoning, nuisance, or the police power. The government has an obligation to reduce human suffering, especially when the cost is relatively small, if not trivial. So, what does this Essay propose?

Cities should ban the most allergenic plants. Male clones of mulberry, juniper, cypress, maple, box elder, yew, *Podocarpus*, and olive should have no place in our cities, towns, and suburbs. Since trees can live for decades, cities should require landowners to remove any trees whose pollen will drift onto another parcel, which includes every tree on every parcel. Owners should have the option to pollard their trees, which prevents pollination. Alternatively, some trees can be pruned and top-grafted with female scion wood, essentially a botanical sex change.⁴⁶

Cities should ban Bermuda grass and insist that other species are mown regularly. Today, the only pollen-free grasses are dormant during the winter, turning brown.⁴⁷ A few months' break from green might be the price of human health. Once more pollen-free grasses are available, however, cities have no excuse but to ban all allergenic lawns.

Additionally, the U.S. Department of Education should determine that removing allergenic plants is a reasonable accommodation for children with allergic asthma or other disabling pollen allergies. Furthermore, the Department should condition grants under the Individuals with Disabilities Education Act on removing allergenic plants.⁴⁸ Removing allergenic plants from schools will also benefit children without disabling asthma, since no one learns better while suffering from hay fever.

Many of the worst-offending species have close substitutes.⁴⁹ Gardeners typically choose trees for functional reasons, not taxonomic ones, meaning that they are looking for a large, upright evergreen, or low, spreading tree with good seasonal color. Since most people cannot distinguish between species,

46. OGREN, GARDEN, *supra* note 6, at 3, 22–23.

47. Female clones of buffalograss are available for all regions; all are native, tough, low-growing, and drought-tolerant. *Id.* at 51, 189.

48. See 20 U.S.C. §§ 1400–1491 (2006).

49. OGREN, GUIDE, *supra* note 15, is a good resource for identifying allergenic plants and good substitutes.

even trees that are quite different botanically would make good substitutes.

For example, the male juniper is highly allergenic, while the female produces no pollen. Juniper berries are not true berries, but seed cones, and therefore are much less messy than true berries or fruit. Similarly, male ash, box elder, cypress, and yew trees can be replaced with female trees. The ash and box elder produce small seeds, while the cypress and yew produce seed cones. For some trees, the female substitute is preferable: the holly produces bright red fruits (often called berries) that contrast with the evergreen leaves nicely.

Even for trees without close substitutes, there are attractive, no-pollen options. For example, the male mulberry is highly allergenic, but the female mulberry fruits. (While some people love mulberries, most do not like the litter.) The maple has a similar overall appearance to the mulberry, except the maple's fall color is red and intense, while the mulberry's fall foliage is yellow. There are two dozen female maple cultivators that thrive in cities.⁵⁰

The argument for compensating those required to remove allergenic trees is political, not legal. Allergenic trees are a nuisance, and landowners are due no compensation for removing a nuisance. However, if partial, or even token, compensation will allow government to remove the most allergenic pollen from cities, then the improvement in health and the reduction in suffering is certainly worth it. Even if human suffering is assigned no economic cost, lost work due to pollen allergies imposes significant costs. As an alternative to compensating owners monetarily for the trees removed, cities could buy allergy-free trees at wholesale, making them available at or below cost to the many landowners who will replace trees under the new regulations.⁵¹

Sadly, cities are unlikely to ban allergenic plants without prodding. Those tasked with selecting and planting trees have ignored the science. In 2010, the New York Parks and Recreation Commissioner wrote to the *New York Times* to say that the city would continue planting as before, despite Thomas Ogren's editorial describing the link between certain trees and allergies.⁵² One way that allergy sufferers can prod cities into action

50. In addition to red maple cultivars like the Autumn Glory, there are red and silver maple hybrids. *Id.* at 30–33.

51. My thanks to Tom Ogren for this suggestion.

52. Adrian Benepe, Letter to the Editor, N.Y. TIMES, Apr. 18, 2010, at

is through litigation. Since schools often have the highest pollen counts, lawsuits should begin there. If administrators are more interested in preserving the landscaping than student health, then schools should be sued and should lose those lawsuits. Since the duties owed between adjacent landowners are less clear-cut, lawsuits between neighbors may slowly follow. Even if courts are unwilling to accept that allergenic pollen is a nuisance, pollen trespass should be a viable theory of liability.

Pollen allergies are more than an inconvenience. For some, allergic asthma is fatal. For many more, pollen allergies are disabling, turning months of the year into a haze of congestion and medication. While we cannot stop an allergenic plant from flowering, we can make sure it does not flower next to our home, work, or school. Removing the most highly allergenic plants will reduce the personal suffering caused and the social costs borne by everyone, allergenic or not.