

# A FOREST FOR THE TREES: DEFORESTATION AND CONSERVATION EFFORTS IN NORTHUMBERLAND COUNTY, ONTARIO 1870-1925

Jessica Dunkin

*Landscapes are formed by human activities as well as natural processes. The history of the...landscape is just as much a history of cultural forces and philosophies which shaped the land as it is a history of nature's influences.<sup>1</sup>*

While much has been written on the province's involvement in reforestation projects beginning in the late-nineteenth-century, the interface between provincial initiatives and local activities has received little attention from the academic community. The exception is Diamando Diamantakos's exploration of the impact of provincial forestry legislation on municipal tree planting programmes, for which she uses Essex County in south-western Ontario as a case study. Diamantakos offers valuable insight into the failure of provincial forestry legislation to translate into planted trees at a municipal level. Specifically, she argues that the success of afforestation programmes was 'limited by the continuing priority attached to private property rights, doubts concerning the relation between forest loss, climate and productivity, and a long-standing antagonism towards nature and forests'.<sup>2</sup> Unfortunately, her work is restricted to two nineteenth-century forestry initiatives, *The Ontario Tree Planting Act*, 1883 and the creation of the Clerk of Forestry in the same year. As such, Diamantakos' work provides only a snap shot of the ways in which early provincial afforestation schemes were adopted or avoided by municipalities, making it difficult to identify what aided or inhibited the success of such initiatives.

This paper endeavours to fill in this gap in the literature by chronicling the evolution of forest conservation theory and practice in Ontario from the 1870s until the early twentieth century using Northumberland County as a case study.<sup>3</sup> The focus of this research is on determining who was responsible, the province or the county, for the conservation efforts, which led to the development of municipal forests; however, this paper also explores how the valuation of forests shaped the legislation being enacted

by the province, as well as participation in, or abstention from, reforestation activities by the Council of the United Counties of Northumberland and Durham during this period. By tracking the evolution of ideas about forests, this paper offers insight into the connection between the ways in which societies understand and value natural entities, such as forests, and the efforts they make to preserve or conserve such entities, a topic which is particularly salient considering the contemporary debates regarding the preservation of wilderness areas and the conservation of natural resources in the face of resource exploitation and climate change.

In the period between 1870 and 1925, much of the dialogue regarding deforestation and conservation occurred within elite academic, political and agricultural circles. Furthermore, afforestation activities tended to be the spearheaded by various wings of the Ontario government, including the Department of Lands and Forests and the Department of Agriculture, or by educational institutions, such as the Ontario Agricultural College. Nevertheless, the extent to which a municipality would adopt the theories and practices central to this elite dialogue was determined by the importance of such legislation to the County Council. In other words, the Council would only adopt legislation that was relevant to their concerns or which served their interests. In turn, the actions of both the provincial and municipal authorities were influenced by their valuation of forests, as is demonstrated by the changing approaches to forest conservation efforts. During the period of early settlement, forests were seen primarily as an impediment to development and thus, reforestation schemes were virtually non-existent. As deforestation impacted the financial well-being of agriculturalists and foresters, steps were taken to replenish existing woodlands; however, both the scope and success of such schemes was limited. Only when the various parties with vested interest in forests began to recognize the myriad qualities and benefits of these woody ecosystems did the range of afforestation programmes expand and their success rate improve. Nevertheless, even as the awareness of forest benefits increased, ecological or social considerations continued to be tempered by financial concerns at all levels.

The first forests of Northumberland County, which were primarily spruce, emerged with the recession of the Wisconsin glaciers approximately 11,000 years ago. Over time the influence of climactic heating and cooling cycles resulted in varying proportions of coniferous and deciduous trees in the County forests, until approximately 3000 years ago. At that time, the mixed

forest characteristic of the pre-contact landscape, which consisted of white pine, red and white oak, sugar maple and beech, became dominate in Northumberland County.<sup>4</sup> The inhabitants of the County forests from glacial retreat onward were an ever-changing population of Indigenous peoples. Contrary to the myth of the ‘ecological Indian’, a stereotype which assumes that ‘indigenous people live in perfect harmony with the environment, more *of* nature than *in* it [original emphasis]’, First Nations groups altered their environment through the establishment of semi-permanent settlements, hunting and agricultural practices, such as the girdling of trees and burning.<sup>5</sup> The arrival of European settlers in Northumberland County, however, in the 1780s precipitated changes in the land, particularly forest land, on a much larger scale. For example, by 1880, between seventy-five and eighty percent of the forest cover had been removed in five of the County’s eight townships.<sup>6</sup>

The rapid deforestation that followed the arrival of the first settlers can be partially understood within the context of their social and economic needs; however, it also stemmed from ‘cultural values about nature and land-use’.<sup>7</sup> As Denis Cosgrove has argued in *Social Formation and Symbolic Landscape*, ‘the relationship between societies and their environment as it is lived is as much a product of consciousness as of material realities’.<sup>8</sup> In other words, the natural world influences how inhabitants relate to it, but so too do the ways in which the inhabitants *think* about the natural world. In Ontario, a number of cultural values mediated the relationship between settlers and the forest. First and foremost was the ‘ethos of anti-nature’, which was pervasive throughout the nineteenth-century.<sup>9</sup> In particular, this ideology was characterized by a rhetoric of struggle, pitting man against nature, which is evident in the writings of Catharine Parr Traill, an English immigrant who passed through Northumberland County in the fall of 1832.

*Look on those interminable forests, through which the eye can only penetrate a few yards, and tell me how those vast timbers are to be removed, utterly extirpated, I may say, from the face of the earth, the ground cleared and burnt, a crop sown and fenced, and a house to shelter you raised, without difficulty, without expense, and without great labour.<sup>10</sup>*

As this quotation further indicates, settlers also desired to control the

wilderness, to organize and make ‘useful’ that, which had been covered by forest. This principle falls within the bounds of the ‘evangelical doctrine of progress’, which Dimantakos defines as the belief that ‘by civilizing and conquering the wilderness, economic prosperity and moral improvement could be attained’.<sup>11</sup> This doctrine of progress finds its roots in the first chapter of Genesis: ‘And God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.’<sup>12</sup> This verse also served as the foundation for another common belief that was equally detrimental to forest conservation, that ‘land became private property, existing not so much as a living organism as a commodity for human use’.<sup>13</sup> As such, early settlers treated the Northumberland wilderness as if it was unbounded, exploiting the forests resources of timber, firewood and by-products such as potash, as they saw fit.

The extensive clearing for the purpose of settlement and forestry revenues, as well as intensive agricultural practices, resulted in desertification, denitrification and erosion.<sup>14</sup> The degradation of the land, in turn, led to a decline in the local population between 1860 and 1930, as farmers left behind their now unproductive farmland. By 1900, just over a hundred years after the first settlers arrived on the shores of Lake Ontario, large stretches of sand wastes were to be seen across the United Counties of Durham and Northumberland. The most affected area of Northumberland County was the Oak Ridges Moraine, a ridge of stratified glacial till that runs from the Niagara Escarpment in the west to the Trent River in the east. This ridge, which acts as a drainage divide between Lake Ontario in the South and Georgian Bay in the north, is primarily comprised of sandy soils, making it more susceptible to degradation.<sup>15</sup>

Northumberland County was, by no means, an anomaly in Ontario or in other settler colonies. On the contrary, this story of forest exploitation was being retold again and again across the province and in the other neo-Europes of Australia, New Zealand and the United States.<sup>16</sup> In New Zealand, more than half of the remaining forest land was cleared between 1840 and 1900. Although concerns about the impact of cutting indigenous forests were being expressed as early as the 1870s, rapid deforestation continued unabated until 1920. Other locales such as New England experienced similar impacts to Ontario, in response to the destruction of large tracts of forests for both agricultural and forestry initiatives. Specifically, residents noted a

change in the composition of remaining stands, erratic local temperatures, altered drainage patterns and erosion.<sup>17</sup>

Ontario historian J. David Wood claims that the calls for conservation were present in the public discourse as early as 1797; however, the first piece of provincial legislation to encourage reforestation, entitled ‘An Act to encourage the planting of trees upon the highways in this Province, and to give a right of property in such trees to the owners of the soil adjacent to such highways’, was not passed until 1871.<sup>18</sup> Little remains of this flagship legislation or the circumstances surrounding its enactment. As such, it is difficult to determine why the provincial government developed an interest in tree planting at this time, especially as deforestation and conservation did not become a widespread public issue until after the act was passed, although the fact that similar legislation was enacted in New Zealand in 1871 suggests the possibility of a broader colonial influence.<sup>19</sup> In addition to questions regarding the impetus for such legislation, there is no data to indicate whether or not the act was successful in encouraging tree planting in Northumberland County or elsewhere, for that matter; however, the appointment of the Ontario Agricultural Commission in 1880 to study, among other things, avenues for promoting afforestation suggests that the legislation failed to live up to earlier expectations. The recommendations of the Commission give some indication as to the obstacles facing reforestation initiatives at this time, namely money and resources. The Commission concluded that in order to promote private tree-planting, the province would have to offer financial assistance and tax exemptions, as well as create tree nurseries to distribute saplings. In addition to these tangible obstacles, stereotypes associated with forests during early settlement remained influential in this period, making it difficult for the average Ontario resident to see forests or tree planting in a positive light.<sup>20</sup>

The second attempt by the provincial government to legislate reforestation came in 1883 with the enactment of *The Tree Planting Act*. *The Ontario Tree Planting Act* was significantly broader in scope than its 1871 predecessor. For example, it encouraged the planting of trees in all marginal spaces contiguous to the owner’s land, as opposed to just the areas bordering highways. Furthermore, it declared the planted trees the property of the land-owner and provided for the administration of financial incentives, a cost which was ultimately shared by the province and the municipality. *The Ontario Tree Planting Act* also emphasized the importance of reforestation

by allowing the ‘application of penalties’ to any person who wilfully damaged a tree, or whose animal did the same.<sup>21</sup>

The motivations for the 1883 legislation are much easier to determine than those of the ‘An Act to encourage the planting of trees upon the highways’. First, as mentioned earlier, deforestation and tree planting were becoming an important issue, especially in agricultural circles. One of the most vocal non-governmental organizations to articulate their concerns about the absence of trees in the landscape in this period was the Ontario Fruit Growers Association, which was established in 1859.<sup>22</sup> Initially their support for tree planting stemmed from concern for the well-being of orchards. In particular, they felt that forest trees could protect fruit plantations from cold winds and windfalls; however, by 1879 the concerns of the Fruit Growers had broadened.

*The Fruit Growers Association need to put forth their best efforts to husband our Provincial and Dominion Resources in their timber limits – to carefully instruct the farming community how much depends on the judicious planting of Forest Trees, their presence producing abundant rainfalls, preserving and distributing moisture and thereby forming a preventive against drought and devastating flood.<sup>23</sup>*

Although the Fruits Growers began to recognize the negative effects of deforestation beyond their impacts on orchards, their underlying concerns appear reduced yields and profits, rather than ecological health and well-being.

Anxiety over the loss of forests also began to be expressed in government documents and initiatives in this period. For example, a report on the natural resources of the Dominion of Canada penned by William J. Patterson in 1883 stated that.

*While the increasing demands of commerce are causing the timber forests of Canada to be cut down at a sweeping rate year after year, no protection from fire is enforced by the Government, - there has been but a feeble cry raised for the conservation of the forest patrimony of the Dominion, - there is no planting, and no protection for the young trees. Unless this record is speedily reversed, future*

*generations will have good reason to blame their progenitors for their imprudent, even prodigal, mismanagement.*<sup>24</sup>

Equally telling was the establishment of the Clerk of Forestry in that same year. Here again, however, the primary concern appears to be vanishing resources. According to Ontario historian Diamando Diamantakos, however, the creation of the Clerk of Forestry was a response to concerns about forest fires and not deforestation per se. In other words, the province was afraid of losing financially valuable timber stocks. While the activities of the Clerk were coloured by their particular valuation of the forest, they did make some important contributions, particularly in the area of education. The main objective of the Clerk of Forestry was to inform the public on various topics related to forestry including afforestation through the organization of public forums and addresses, the development of educational afforestation schemes, the publication of appropriate literature, and the enactment of legislation. Arbour Day, for example, endeavoured to ‘abolish long standing myths and misconceptions associated with nature and forests’ and promote the benefits of reforestation by the engaging school children in tree planting activities. The Clerk also lobbied for legislative changes. The first piece of legislation supported by the Clerk was the aforementioned *The Ontario Tree Planting Act*.<sup>25</sup>

Backing for *The Ontario Tree Planting Act* was virtually non-existent in the municipality of Northumberland and Durham. A review of the *Proceedings of the Municipal Council of the United Counties of Durham and Northumberland* from 1883 to 1888 reveal that not only did the County Council fail to create a by-law ratifying *The Ontario Tree Planting Act*, but the issue was not even raised in council chambers in this period.<sup>26</sup> There is evidence, however, of other provincial acts receiving attention in Chambers. For example, in this same period, the provincial government passed legislation pursuant to peddlers and hawkers, legislation which the Council quickly incorporated into municipal by-laws. Unfortunately, the same cannot be said of the forestry legislation. Diamantakos observed a similar lack of support in Essex County.

The Ontario Clerk of Forestry, Thomas Southworth attributed the ‘somewhat meagre results’ of *The Ontario Tree Planting Act* – only 75,000 trees were planted by 1896 – to the fact that landowners were only paid if the trees were

healthy three years after planting, as well as ‘technical details regarding the plantings themselves’.<sup>27</sup> However, there are a number of other possible explanations for the failure of this legislation at the municipal level. First, the provincial government did not institute all of the recommendations of the 1880 Agricultural Commission. For example, trees were not coming from government nurseries, but were wild saplings from neighbouring woodlots. By failing to implement the Agricultural Commission’s recommendations, the province hindered the success of the new legislation from the beginning. Secondly, the legislation was inherently weak. The objective of *The Ontario Tree Planting Act* was not to encourage reforestation for the purpose of replenishing timber stocks or supporting agricultural operations, but for ornament and shade. Diamantakos has suggested that ‘not all localities were convinced of the dual crisis in agriculture and timber exploitation’; however, the nature of the 1883 legislation suggests that the government itself was not truly convinced of the ‘dual crisis in agriculture and timber’.

<sup>28</sup> How then could the province convince municipalities of the necessity of planting? The importance of government support in ensuring the success of reforestation initiatives has been demonstrated in the case of New Zealand, which enacted similar forestry legislation in 1871 and 1884. David Rhodes and John Novis claim that the failure of this legislation can be explained by the fact that the government’s ‘primary objective of promoting European settlement and rapid economic development took precedence over any concerns about the rate of deforestation’.<sup>29</sup> As a result of its limited success, *The Tree Planting Act* was repealed in 1896. Although municipalities retained the right to pass tree planting by-laws, any financial incentives for participants now had to come from municipal coffers.<sup>30</sup>

In the almost thirty-year period between the passing of *The Ontario Tree Planting Act*, 1883 and *The Counties Reforestation Act*, 1911, there was a lull in provincial legislative efforts, although a number of non-governmental organizations, such as the Ontario Agricultural College (OAC) in Guelph, continued to promote the benefits of forests and encourage tree planting. In 1879, the Ontario Agricultural Experimental Union was established by the staff and students, past and present, of the OAC. The purpose of the organization was to create a ‘system of cooperative agricultural experiments throughout the province’.<sup>31</sup> While the majority of experimental plots active by 1899 under the auspices of the Experimental Union were dedicated to agricultural crops, a forestry wing was created in 1900 to conduct similar research in reforestation. Five years later, the first test plantations were

established in Durham and Norfolk Counties.<sup>32</sup>

The activities of the college, however, extended beyond research into the political sphere, where faculty were working to keep deforestation an important issue. Shortly after its creation, the Experimental Union sent the government the following resolution requesting the provision of resources for the purpose of reforestation.

*The Experimental Union, recognizing the urgent necessity for action in the reforestation of wastelands through Old Ontario, would recommend that the Department of Crown Lands be requested to provide material sufficient to reforest areas sufficiently large to provide forest conditions in typical situations through Ontario, the Union undertaking to supervise the distribution.<sup>33</sup>*

The Experimental Union's request for saplings demonstrates the way in which financial concerns served to deter private land owners from participating in both provincial and local tree planting efforts. The following excerpt from an address given by the President of the Union, Mr. H.R. Ross, in 1900, offers some insight into why reforestation was such an important issue for the Experimental Union in this period.

*The reduction of our forest areas is becoming a source of menace to our farmers. The periodic and protracted droughts are not to be lightly regarded. The question of fuel supply by no means ends the matter. By applied forestry in its truest sense a great deal could doubtless be accomplished in husbanding our present supply, but there are areas of varying size on every farm which could advantageously be employed in providing for the woodlots of the future. These areas along with the windbreaks and shelterbelts would materially reduce the risks from destructive winds and excessive droughts.<sup>34</sup>*

As this quotation indicates, the value of trees for the Experimental Union was primarily seen in relation to agricultural needs. For example, the creation of forests could prevent the droughts, which destroyed farmer's crops. This reasoning echoes the previously discussed manifesto of the Fruit Growers Association.

The most vocal supporter of reforestation at the Agricultural College

was Edmund J. Zavitz. Zavitz, who has been referred to as the ‘father of afforestation in Ontario’, was a lecturer at the College and the founding director of the on-site tree nursery established in 1905, the first of its kind in the province.<sup>35</sup> It was from this nursery that Zavitz began handing out trees free-of-charge to be planted on private land; however, his work eventually took him across the province. Between 1905 and 1908, Zavitz travelled around Ontario by buggy and bicycle visiting areas deemed ‘waste lands’, including Northumberland County. The culmination of his travels was an account entitled, *Report on the Reforestation of Waste Lands in Southern Ontario*.<sup>36</sup> In this report, Zavitz claimed that less than 15% of original woodland remained in existence in the established townships of southern Ontario. With respect to Northumberland County, he noted that while the area is ‘not entirely a wasteland’, approximately 75% was ‘wholly unfit for successful farming’.<sup>37</sup> Of this 75%, he identified the poorest land as being located between the east end of Rice Lake and Burketon on the CPR line, with the ‘largest contiguous area of poor land’ being located in Haldimand Township.<sup>38</sup> That it was this area which was in the worst condition is not surprising as this is the portion of the United Counties occupied by the Oak Ridges Moraine.

The contents of Zavitz’s report, particularly the conclusion reprinted here, elucidate his perceptions of forests.

*The policy of putting these lands under forest management has many arguments in its favour. It will pay as a financial investment; assist in insuring a wood supply; protect the headwaters of streams; provide breeding ground for wild game, provide object lessons in forestry, and prevent citizens from developing under conditions which can end only in failure.*<sup>39</sup>

Interestingly, only a few of the points included in this list received attention in the body of the report. For example, in the section on Northumberland County, Zavitz expressed particular concern for the state of the streams, as they were an important source of water for towns such as Cobourg and Port Hope.<sup>40</sup> The emphasis of the report, however, is on hardwood supply and the financial benefits of tree planting. With respect to the former point Zavitz believed that if the wasteland areas of ‘Southern Ontario were placed under forest, it would assist to insure this older part of the Province against a wood famine for its local industries’.<sup>41</sup> In particular, he wanted to

avoid importing hardwoods from the United States. It is not clear whether Zavitz truly valued money over ecological health or if was appealing to the economic sensibilities of those who had been opposed to reforestation, although both are possible.

Around the same time that Zavitz was touring the province researching ‘waste land’, the provincial government established the first demonstration forests, indicating their renewed interest in forestry issues. The purpose of demonstration forests was to educate the public on the benefits of tree planting through the reforestation of small pieces of marginal lands, between two and one hundred acres in size.<sup>42</sup> As would become standard practice in municipal forestry, the responsibility for demonstration forests was split between the owners of the land and the Department of Lands and Forests. While the owners were expected to purchase the land and provide adequate protection for it because ‘these plots are becoming so numerous in the province that the Department [of Lands and Forests] cannot send men to protect and otherwise look after them’, the Forestry Branch agreed to help with the selection of land and with ‘inspection and any necessary improvement work’. The Forestry Branch also supplied the trees and transported them to the appropriate location, paid local men to plant the trees and sent ‘experienced men...to oversee the planting work’.<sup>43</sup>

The Municipal Forest booklet published by the Department of Lands and Forests presents the development of the demonstration forest scheme as yet another part of a broader provincial afforestation plan.

*For some years past the Government has been interesting private land owners in the work of planting these areas...Up to the present, however, the amount of this kind of land which has been planted is extremely small compared to the area which might be set out with forest trees. For this purpose then, the Government, through the Ontario Forestry Branch, proposes to bring such work more strongly than ever before the people of the province.<sup>44</sup>*

However, the fact of the matter is that the provincial government had distanced itself from tree planting initiatives following the repeal of *The Ontario Tree Planting Act, 1883* in 1896. How then can this renewal of provincial interest be explained? Most likely, the province was responding to the lobbying efforts of the Ontario Agricultural College and its faculty,

particularly E.J. Zavitz. In 1908, the tree nursery that had been started at the OAC three years earlier was moved to Norfolk County as part of the newly established St. Williams Forest Station, which was also home to the first demonstration forest.<sup>45</sup> In its new location, the nursery became the responsibility of the Department of Lands and Forests.

Unlike previous writing on forests, which only cited the economic benefits of tree-planting within the agricultural and commercial forestry sectors, the contemporary demonstration forest documents had a broader vision of the value of trees and forests. Although reforestation was believed, first and foremost, to put ‘waste land’ to good use, which in turn had the potential for financial rewards, the author, A.H. Richardson, also discussed the importance of forests in preventing drifting sand, protecting community water supplies and as windbreaks in both agricultural and recreational areas. Demonstration forests could also function as spaces in which service organizations, such as the Boy Scouts, could ‘engage in some phase of constructive patriotic work’ or as places which provided employment to local people. The latter point, in particular, was given special attention by the author: ‘The people of the community will be educated in the actual work of planting, because it will be they who will set out the trees. They will learn how to care for planting material...and how it should be handled in planting is the bests results are to be obtained.’ This same booklet also made reference to the aesthetics of forests, a significant departure from earlier writings which saw forests as dark and primeval. For example, below a picture of a sandy field and roadway is a caption stating: ‘Tree planting here would change this barren field to a forest of beauty’.<sup>46</sup>

By 1927, forty demonstration forests had been established across the province, two of which were located in Northumberland County. Little information exists on the demonstration forests of Northumberland County aside from their location. One such forest was located in Cramahe Township to the east of Cobourg, while the second was in close proximity to the Town of Port Hope.<sup>47</sup> Furthermore, there is no mention of either of these forests in the County Records just as there was no mention of the earlier legislation passed by the province, suggesting that the County was neither interested nor engaged in the operation of either forest. On the contrary, they were likely operated by the township or town council.

An article published in the *Canadian Forestry Journal* in June 1910 offers

the first indication of Council of the United Counties of Northumberland and Durham's interest in afforestation. According to the article, in January of the same year, a delegation of representatives from the United Counties made a visit to the Ontario Legislature to discuss the purchase of waste lands for the purpose of reforestation. It would appear that the United Counties was not the first municipal body to approach the provincial government with respect to reforestation; on the contrary, the York County Council had made a similar visit previously. Their requests, however, were very different. Whereas York County wished merely the 'power to purchase waste land in order that they might re-forest and control such land themselves', the United Counties wanted the province to provide the financial backing for the purchase and reforestation of 15,000 acres of 'waste land'.<sup>48</sup>

What sparked the sudden interest in reforestation in the United Counties? Contrary to the impression given by the *Forestry Journal* article, the County Records suggest that the initiative was not locally developed, at least not initially. The following is an excerpt from the 'Agricultural Committee Report' for December 1909.

*In as much as the Minister of Agriculture in behalf of the Ontario Government, has invited the County Council to present a scheme for the reforestering of the waste lands of the Counties, we would recommend that a deputation to be named by this Council as a whole, be appointed to wait upon the government and present a plan which they believe would be mutually advantageous.<sup>49</sup>*

This quotation offers two pieces of valuable information. One, it appears that the provincial government prompted interest in reforestation activities by approaching the County Council to solicit reforestation plans, thus suggesting once again that the province was the primary player in tree planting activities. At the same time, the excerpt also demonstrates the agency of the County Council. As was discussed earlier, the County did not even make mention of the 1883 forestry legislation; however, in this case, the County not only prepared a reforestation plan, but they took the provincial request a step further by organizing a delegation to petition the provincial government. Their actions demonstrate a greater level of concern about afforestation on the part of the Council than that shown by their counterparts in Toronto.

There remains, however, the question of what benefit tree planting held for the County Council? Unfortunately, the references to reforestation in the Council Minutes are vague. While they clearly emphasize the importance of reforestation activities, there is little discussion as to why forests are important; rather, the Council appears to have assumed that the benefits of reforestation were widely understood and therefore, did not need to be elaborated on. Therefore, one can only postulate as to their perceptions of forests and afforestation. Perhaps, the County was responding to a need they recognized in their community or perhaps, they were influenced by the presence and opinions of outside elites. There may be some truth to both of these possibilities. According to the author of the Canadian Forestry Journal article, the proposal presented by the Council had the support of constituents present at 'local meetings held throughout the united counties', suggesting that local residents felt that afforestation was welcome, although the tone of the article is quite enthusiastic, which compromises its claims to an extent. The author also claims that the proposal was endorsed by of the Dean of the Faculty of Forestry in Toronto University, as well as E.J. Zavitz. Zavitz is said to have stated that 'public sentiment in the united counties...was more advanced in the forestry question than anywhere else in the province, except possibly in Norfolk County'.<sup>50</sup> It would appear that Zavitz had regular contact with the County Council. As discussed previously, he spent the better part of three years travelling across the province chronicling the extent of wasteland and promoting reforestation efforts. As one of the stops on this journey was Northumberland County and one of his main objectives was spreading the gospel of tree planting, one can safely assume that he made contact with county officials. Furthermore, the Council Minutes of 1909 indicate additional visits from Zavitz in December of that year. In particular, he was sent by the Ontario Government to 'deliver addresses, with lime light views, illustrating waste lands and also take a census of the same in Clarke and Halldimand townships'.<sup>51</sup> Zavitz's presentations were scheduled for Pontypool on 14 December, Orono on 16 December, and Castleton on 17 December, although the good Professor 'offered to return and continue this work until completed after the holidays'.<sup>52</sup> Although the Council gives little indication as to their reasons for wanting to reforest the United Counties, they likely shared similar ideas about the forest as Zavitz because of their continued contact.

There was no word from the provincial government for some time on the 'reforestation question' that had been posed by the deputation in 1910. A

number of references were made in the Council Minutes to the fact that the Special Committee was awaiting a reply until mention of a letter from the Director of the Forestry Branch appears in the December 1911 minutes.<sup>53</sup> This letter arrived after the province passed the first piece of municipal forestry legislation, *The Counties Reforestation Act*, 1911. Although the letter from the Director, as well as a reply letter are mentioned in the minutes, neither was included in the Records, so there is no documentation of what transpired, although it would appear that the province waited until the legislation was passed before making contact with the deputation committee.

*The Counties Reforestation Act* enabled counties to pass by-laws concerning the purchase or lease of lands, primarily abandoned farmland, for the purpose of reforestation.<sup>54</sup> In other words, the province had created legislation, which met the York Council's demands for the power to acquire land, but did not provide any funds, as had been requested by the United Counties Council. Municipal forests were presented as a viable reforestation option in a 1903 report of the Bureau of Forestry by Thomas Southworth; however, the fact that they did not become a legislated until 1911 suggests that pressure by municipalities such as York County and the United Counties of Northumberland and Durham may have been an important determinant in swaying the province's support for afforestation activities.<sup>55</sup> Unfortunately, *The Counties Reforestation Act* was relatively ineffective. Between 1911 and 1919, the average annual distribution of trees for reforestation purposes was just over 200,000.<sup>56</sup> Furthermore, there do not appear to be any official forests, which developed as a result of the 1911 legislation; on the contrary, reforestation efforts appear to have been limited in the period following *The Counties Reforestation Act*, perhaps because of financial constraints, which were not addressed by the legislation.

The Council of the United Counties of Northumberland and Durham was quiet on the subject of reforestation for the better part of a decade following the receipt of the letter from the Director of Forestry in 1911, likely because of the First World War, which resulted in a number of previously important issues being placed on the back burner. On the final day of Council meetings in December 1919, however, the issue was raised once again. Mr. Coulson, Reeve of Newcastle Township, moved that the Council 'memorialize the Provincial Government to take this matter [of reforestry] up at as early a date as possible, and that an initiative attempt be made in the United Counties'.<sup>57</sup> The motion was seconded by Mr. Allin,

Deputy Reeve of Clarke Township. Shortly thereafter, a decision was made by the members of the Council to form ‘a deputation to present the matter of reforestation to the Ontario Government’.<sup>58</sup> On 22 December 1919 the Special Committee on Reforestation was received by the Minister of Forests, the Honourable Mr. Bowman, the newly-elected premier, E.C. Drury and E.J. Zavitz, who continued to serve as a Professor at the University of Guelph.<sup>59</sup> Drury was the former director of the Experimental Union at the Ontario Agricultural College and a well known supporter of reforestation efforts. It would appear that the delegation was hopeful that such a premier would be sympathetic to their petition; however, Drury’s response was far from encouraging. According to the report of the Special Committee, included in the January 1920 minutes, Zavitz is said to have agreed with the Committee that the reforestation of marginal land was ‘very feasible’; however, Premier Drury held that ‘it would be necessary for the Counties to procure and pay for the land [they] wished to have them reforest’.<sup>60</sup> A newspaper report stated that after expressing his sympathy, he stated that ‘sufficient revenue and assurance that the province was getting value for the money experienced’ were required in order for the government to throw its support behind any initiative, forestry-related or otherwise.<sup>61</sup> Drury’s response to the United Counties delegation further demonstrates the ways in which money constrained reforestation evidence. The United Counties Council delegation of 1910 could be seen as a lone attempt by the municipality to encourage reforestation; however, the dispatch of a second deputation in December 1919 solidifies the importance of the issue of reforestation for the County. Unfortunately, as was the case with the earlier delegation, there is little indication as to why reforestation remained such an important issue for the County Council.

Little was accomplished by Drury and his government with respect to reforestation until 1921, when the legislature passed *The Reforestation Act*.<sup>62</sup> Whereas *The Counties Reforestation Act* continued to place the financial onus on municipalities, with *The Reforestation Act* the Minister was able to ‘acquire by lease, purchase, or otherwise, lands for reforestation purposes within the province’.<sup>63</sup> Furthermore, *The Reforestation Act* ‘enabled the province to enter into agreement for reforesting, developing and managing lands held by counties’, thereby sharing the responsibilities for the forests between the municipality and the province.<sup>64</sup> As an aside, one of the immediate effects of this legislation was the creation of more nurseries like the one established in St. Williams in 1908. One such nursery

was established at Orono, a small community located within the United Counties of Northumberland and Durham, in 1922.<sup>65</sup> According to A.H. Richardson, Orono was chosen because it was in close proximity to areas of major desertification; however, one cannot help but wonder if the pressure placed on the government by the United Counties Council had any impact on the decision to establish a forest station within the boundaries of the county.

The financial support for tree planting initiatives, which was embedded in *The Reforestation Act* indicates the increasing importance of afforestation for the provincial government. Once again, however, the United Counties Council took no action to ratify the legislation and create a municipal forest. In fact, the only municipality that did establish a county forest in this period was Simcoe County.<sup>66</sup> Only after *The Reforestation Act, 1921* was amended at the request of the Counties Special Committee on the Reforestation of Wastelands in November 1923 did municipalities really begin to develop Agreement Forests. The section of the 1921 legislation which authorized the Minister to acquire lands was the only one to be altered. Specifically, the revised legislation extended the power of the Minister – and thus, the municipality – to ‘take and expropriate any land in Ontario which the Minister may deem necessary for reforestation purposes’, in addition to such land ‘by lease, purchase, or otherwise’.<sup>67</sup> Perhaps this amendment was so effective because of the facility it gave Counties to obtain the necessary lands for the creation of municipal forests.

Correspondence between the Special Committee and Chief Forester A.H. Richardson in 1923 resulted in a visit from Richardson to the United Counties on 2 November of that year. The Chairman of the Special Committee, the Chief Forester and Mr. Linton ‘together went over the lands in the Township of Haldimand and they were favorably impressed’. As a result, the Committee was called together on 14 November and ‘the Chairman was instructed to proceed at once and get options on at least 1,000 acres of this land’. In 1923 the County Council United Counties of Northumberland and Durham selected an area in Haldimand Township to become the first tract of the Northumberland County Forest. In December 1923, the options for 1011 acres were presented to the County Council and the recommendation of the Committee to take up the options was accepted.<sup>68</sup> The following year, the province and the county entered into a thirty year management agreement, whereby the Province managed the forest and assumed all management

costs. With the signing of that agreement, Northumberland County became the second municipality to establish a County Forest. By 1940, ten other counties had followed suit.<sup>69</sup>

The pattern of settlement and forest exploitation which characterized Northumberland County in the nineteenth-century was not unique to this municipality. On the contrary, other settler societies in Canada, the United States, Australia and New Zealand have undergone similar processes. Upon arriving in their new homes, ‘settlers sought not so much the creation of a new society as the re-creation of an older, more familiar one which allowed them to advance their own personal fortunes’.<sup>70</sup> For those who settled in Northumberland County, the society they were recreating was a pastoral one, which necessitated the clearing of forests for agricultural purposes. This clearing was also facilitated by an ‘ethos of anti-nature’.

The removal of large quantities of trees was not without consequence. On the contrary, Northumberland County faced myriad problems in the wake of deforestation, such as denitrification, erosion, flooding and the disappearance of streams. Although the province developed a number of reforestation initiatives in the late-nineteenth and early-twentieth centuries, the United Counties declined to participate until 1909, thirty-eight years after the enactment of the first forestry legislation. While the province was primarily responsible for creating and instituting reforestation schemes, it was the municipal councils, such as that of the United Counties, which determined their success. Without the support of municipalities, provincial schemes rarely translated into planted trees.

How can we explain municipal action, or perhaps more appropriately, inaction with respect to tree planting projects? Firstly, it would appear that municipalities in this period did not adopt all provincial legislation, but only that which served their own interests. For example, in the years following the passing of *The Ontario Tree Planting Act*, the county instituted legislation concerning hawkers and peddlers, but not reforestation legislation, demonstrating their priorities. Secondly, the provincial government often failed to make afforestation schemes relevant for municipalities, especially in the early years. In the case of the 1871 and 1883 legislations, by framing the value of tree-planting within the context of superficial concerns such as shade and ornament, rather than playing to anxieties over economic well-being, the provincial government failed to make tree planting pertinent

to those capable of instituting local by-laws. Relevancy was particularly important because of the enduring environmental ideology of the early settlement period that saw forests as impediments to progress. Tree planting projects were also hindered by the government's ambiguous stance on afforestation. The early legislation especially implied that crop land was more valuable than forested land by only encouraging the planting of trees on roadsides and marginal land.

The development of demonstration forests in the first decade of the twentieth-century signalled an important shift in the characterization of forests in the agricultural and political spheres. Although economic benefits remained central to a forest's worth, the cultural and ecological values of forests also began to be recognized. As the complex worth of forests became evident to both provincial and municipal bureaucrats, the interests and activities on both sides became more congruous; however, without financial support this ideological progress failed to result in the planting of trees. That the single most important factor in determining the success of afforestation schemes was money can be explained in two ways. Most obviously, it took pressure off of the municipality; however, financial support also had symbolic implications. Specifically, it demonstrated the province's commitment to reforestation. Although tree planting initiatives owe their success to financial and ideological support from the province and the municipality, money appears to be the ultimate determining factor.

### **Post-Script**

The establishment of the Northumberland County Forest was not the final chapter in the story of afforestation in Northumberland County. On the contrary, continued concern about deforestation, especially in relation to the impact that the removal of trees had on surface water movement, resulted in a meeting of a number of groups interested in conservation such as *The Federation of Ontario Naturalists*, *The Southern Ontario Society of Forest Engineers*, and *The Canadian Conservation Association* in 1941. The meeting, which was referred to as the Guelph Conference on the Conservation of the Natural Resources in Ontario, made a recommendation that an 'integrated resource management planning study of a watershed' be conducted.<sup>71</sup> The region chosen for the study was the Ganaraska Watershed in the western portion of Northumberland County. A comment made by Richardson, the sole author of the final report, suggests that Ganaraska was chosen because 'a great part of the headwaters is today a barren waste';

however, aside from this observation, the author gives no explicit reason as to why this particular region was chosen over another, making it difficult to determine to what extent local authorities were involved in the process.<sup>72</sup>

The report, which was eventually published in 1944, made a number of recommendations. With respect to legislation, Richardson advised that an Ontario Conservation Board be created 'for the purpose of planning and carrying out surveys' and that 'legislation be enacted...so that municipalities...may undertake a similar conservation programme' to that of the Grand River Valley Conservation Commission.<sup>73</sup> For the Ganaraska Watershed, Richardson recommended that 20,000 acres in the northern section of the watershed be purchased for the purpose of reforestation. Only two years after the report was published the Ganaraska Region Conservation Authority was created, the first of its kind in the province. Together, the Conservation Authority and the Ministry of Natural Resources 'agreed to buy, reforest and manage degraded lands in the watershed' under the auspices of the County Forest Agreement; however, whereas in traditional county forest agreement, the municipality was expected to purchase the land, the Ganaraska Conservation Authority was given enough money to cover 50% of the cost of the land. By 1947, 1,580 acres had been re-forested.<sup>74</sup>

Unlike the Northumberland County Forest, which was borne out of the interests and initiative of the municipality, conservationists and the province, the Ganaraska Forest appears to have been envisioned and developed by elites within the Department of Lands and Forests and the conservation movement. This is particularly evident in the process by which the Conservation Authority scheme was conceived, as well the lack of involvement of local officials. In fact, there is scant mention of United Counties' officials or constituents within the report aside from an acknowledgement of their assistance in providing information on the history of the area.

## NOTES

1. Gordon G. Whitney, *From Coastal Wilderness to Fruited Plain: A History of Environmental Change in Temperate North America from 1500 to the Present*. (Cambridge University Press, Cambridge, 1994). p. 324.
2. Diamando Diamantakos, 'Private Property Deforestation and Regeneration and the Clerk of Forestry in Nineteenth-Century Ontario' in *Scientia Canadensis*. Vol. 21. 1997. p. 29.
3. Northumberland County is located in southern Ontario midway between Kingston and Toronto. It is bounded to the north by Rice Lake, to the south by Lake Ontario, to the east by the counties of Quite West and Hastings, and to the west by Durham County.

The County, established in 1792, was one of the original counties of Upper Canada. In 1850, Northumberland was united with Durham to form the United Counties of Northumberland and Durham. The union lasted for one-hundred and twenty-four years. The Northumberland County Forest, which is located in the central portion of Alnwick-Haldimand Township, was started in 1924.

4. Conrad E. Heidenreich and Robert W.C. Burgar, 'Native Settlement to 1847' in Betty Roots (ed.), *Special Places: The Changing Ecosystems of the Toronto Region*. (UBC Press. Vancouver. 1999). p. 63, 66.
5. Paul Nadasdy, 'Transcending the Debate over the Ecologically Noble Indian: Indigenous Peoples and Environmentalism' in *Ethnohistory*. Vol. 52. 2005. p. 292; Heidenreich and Burgar, p.66; Alan McMillan and Eldon, *Yellowhorn, First Peoples in Canada*. (Third Edition) (Vancouver. Douglas & McIntyre. 2004). p.43.
6. Kenneth Kelly, 'Damaged and Efficient Landscapes in Rural and Southern Ontario, 1880-1900' in *Ontario History*. Vol. 66. March 1974. p.1.
7. Robert Bunting, 'The Environment and Settler Society in Western Oregon' in *Pacific Historical Review*. Vol. 64. February 1995. p.415.
8. Denis Cosgrove, *Social Formation and Symbolic Landscape*. (University of Wisconsin Press, 1998). p. 6.
9. J. David Wood, *Making Ontario: Agricultural Colonization and Landscape Recreation Before the Railway*. (Montreal. McGill-Queen's University Press. 2000). p.8.
10. Catharine Parr Traill, *The Backwoods of Canada*. (Electronic Version) (London. Charles Knight. 1836). Accessed July 16, 2007 at <http://www.gutenberg.org/etext/13559>. p. 23.
11. Diamantakos. p. 32.
12. *The Bible* - King James Version, Genesis 1:28.
13. Bunting. p. 415.
14. Although land had appeared fertile immediately following clearly because of the presence of a thick layer of nutrient-rich organic matter, the sandy soils of the moraine were quickly depleted of nutrients. Furthermore, with no root system to hold the soil, erosion became a major problem.
15. David Puttock, *Critical Review of Historical and Current Tree Planning Programs On Private Lands in Ontario*. (Ministry of Natural Resources. Ontario. 2001). p. 4; D. Henson, *Ontario Ministry of Natural Resources Weekly Release: 50 Years of Reforestation – Northumberland and Durham County Forests*. (January 7. 1974), Northumberland County Folder, Archival Documents, Cobourg Public Library Local History Room. p. 1; *Ontario Ministry of Natural Resources, Forest Management Plan for the Northumberland County Agreement Forest 1982-2002*. (Ministry of Natural Resources, Lindsay District, 1986). p. 19; L.J. Chapman and D.F. Putnam, *The Physiography of Southern Ontario*. (Third Edition. Ontario Ministry of Natural Resources. 1984). p. 9.
16. See Alfred Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900 – 1900*. (Cambridge University Press. 2004) for a discussion of neo-Europe.
17. Michael Williams, 'Ecology, Imperialism and Deforestation' in Tom Griffiths and Libby Robin (eds.), *Ecology and Empire: Environmental History of Settler Societies*. (Seattle. University of Washington Press. 1997). p. 174; David Rhodes and John Novis, *The Impact of Incentives on the Development of Plantation Forest Resources in*

*New Zealand - MAF Information Paper No. 45* (Wellington. Ministry of Agricultural and Forests, 2002). p. 14; William Cronon, *Changes in the Land: Indians, Colonists and the Ecology of New England*. (New York. Hill and Wang. 1983). p. 160.

18. Wood, *Making Ontario*, p.10; Coons, p.3.
19. Rhodes and Novis, p. 14. In that year, the New Zealand government passed the *Forest Trees Planting Encouragement Act*.
20. Diamantakos, p. 46; Puttock, p. 4.
21. Ontario Department of Lands and Forests, *Forest Tree Planting - Bulletin 1* (Toronto. Department of Lands and Forests. 1947). p. 64; Puttock, p. 4; Borczon, p. 12. Landowners were able to receive up to \$0.25 per tree.
22. R. Peter Gillis and Thomas R. Roach, *Lost Initiatives: Canada's Forest Industries, Forest Policy and Forest Conservation*. (New York. Greenwood Press. 1986). p. 33; C.F. Coons, *Reforestation on Private Lands in Ontario*. (Ontario. Ministry of Natural Resources. 1981). p. 3.
23. Coons, p. 4.
24. William J. Patterson, *The Dominion of Canada : with particulars as to its extent, climate, agricultural resources, fisheries, mines, manufacturing and other industries : also details of home and foreign commerce : including a summary of the census of 1881*. (Montreal. Queen's Printer. 1883). p. 79.
25. Diamantakos, p. 35-6; *Ontario Department of Lands and Forests, Forest Tree Planting*. p. 64.
26. United Counties of Durham and Northumberland, *Proceedings of the Municipal Council of the United Counties of Northumberland and Durham – 1883-1888* (Sentinel Star Office, Cobourg, 1883-8).
27. Puttock, p. 5.
28. Diamantakos, p. 42.
29. Rhodes and Novis, p. 14.
30. E.L. Borczon, *Evergreen Challenge: The Agreement Forest Story*. (Toronto. Ontario Ministry of Natural Resources. 1982). 12.
31. Puttock, p. 5.
32. Coons, p. 8. Although the Forestry Wing was created in 1900, the first tree planting experiment were initiated in 1880, in part due to the encouragement of the Fruit Growers Association.
33. Borzcon, p. 13-4.
34. Coons, p. 6.
35. Puttock, p. 5. Puttock gave Zavitz this moniker because he was responsible for starting many of the province's early forest management and extension programmes.
36. Borzcon, p. 13-15; E.J. Zavitz, *Report on the Reforestation of Waste Lands in Southern Ontario*. (Toronto. L.K. Cameron. 1908).
37. *ibid.* p. 6, 14.
38. *ibid.* p. 14, 17. Burketon is located in present-day Durham County, approximately 20 kilometres north of Bowmanville on Regional Road 7. See Google Maps at <http://maps.google.ca/maps?ie=UTF-8&oe=UTF-8&hl=en&tab=wl&q=>.
39. *ibid.* p. 25.
40. *ibid.* p. 17. The southern portion of the County is home to a number of small streams, which find their origin in the Oak Ridges Moraine. According to Zavitz, a number of streams, which find their origin within the moraine, had disappeared by the time

of his visit to Northumberland County.

41. *ibid.* p. 22.
42. A.H. Richardson, *Municipal Forests*. (Reforestation Circular No. 14. Department of Lands and Forests, Toronto, 1927), p. 5. There were a number of guidelines laid out for such forests by the government. First and foremost, the land had to be purchased by, or already in the possession of, a public body such as a county, town, or school board. Secondly, the land chosen should be deemed 'waste land', or unsuitable for agricultural purposes. Once purchased, the land must be fenced for protection against animals, as well as placed under 'friendly protection' by the municipality. Finally, the trees distributed by the Department of Lands and Forests were not to be used for decorative planting; rather, they were to be planted in blocks in line with the educational and renewing purpose of the demonstration forest schemes.
43. *ibid.* p.8- 9.
44. *ibid.* p. 5
45. Ontario Ministry of Natural Resources, St. Williams Conservation Reserve Resource Management Plan (Draft) (Queen's Printer, Toronto, 2005), p. 1-2.
46. Richardson, *Municipal Forests*, p. 5-7, 9, 14.
47. *ibid.* p. 10.
48. Ontario Ministry of Natural Resources, Forest Management Plan, p. 20.
49. United Counties of Durham and Northumberland, December 1909, p. 37.
50. Ontario Ministry of Natural Resources, Forest Management Plan, p. 20.
51. United Counties of Durham and Northumberland, December 1909, p. 36.
52. *ibid.* p. 36.
53. United Counties of Durham and Northumberland, December 1911, p. 29.
54. Ontario Department of Lands and Forests, Forest Tree Planting, p. 66-7.
55. Ontario Ministry of Natural Resources, *Forest Management Plan*, 19.
56. Mark Kuhlberg, 'Ontario's Nascent Environmentalists: Seeing the Foresters for the Trees in Southern Ontario, 1919-1929' in *Ontario History* Vol. 88, June 1996, p. 124.
57. United Counties of Durham and Northumberland, December 1919, p. 14.
58. *ibid.* p. 14.
59. United Counties of Durham and Northumberland, January 1920, p. 48; Kuhlberg, p. 126.
60. United Counties of Durham and Northumberland, January 1920, p. 48.
61. Kuhlberg, p. 126.
62. *ibid.* p. 127.
63. Ontario Department of Lands and Forests, Forest Tree Planting, p. 66.
64. Puttock, p. 6.
65. Kuhlberg, p. 127.
66. Puttock, p. 6.
67. Henson, 2; Ontario Department of Lands and Forests, Forest Tree Planting, p. 67.
68. United Counties of Durham and Northumberland, December 1923, p. 39, 41. The area chosen was located in the land earlier identified by E.J. Zavitz as being particularly poor.
69. Henson, p. 2; Richardson. *op cit.* p. 8-9; Puttock, p. 6. Like demonstration forests, there were guidelines for the creation of county forests. The county had to purchase at least 1000 acres of land in a block and the funds had to be raised by the municipality

itself. Furthermore, the land could not be harvested without the consent of the Minister of Lands and Forests. The Government, in turn, assumed responsibility for the establishment and maintenance of the forest for a period of thirty years, which included the ‘supplying and planting of trees..., the furnishing of equipment, and erecting of fences and necessary buildings, the securing of a competent foreman and the carrying on of the work in accordance with approved scientific forestry method’. In other words, aside from the initial purchase of the land, the Government would be responsible for any other financial outputs.

70. Bunting, p. 415.
71. A.H. Richardson, *A Report on the Ganaraska Watershed*. (Toronto. Dominion and Ontario Governments. 1944). p. 67, vii, xxiii. Ganaraska Region Conservation Authority, *The Ganaraska Forest: Where to Go When Nature Calls* (electronic resource). Accessed July 17, 2007 at [www.grca.on.ca/ganfor.htm](http://www.grca.on.ca/ganfor.htm). In Northumberland County, there was particular concern related to flooding, as ‘since the middle of the last century the good people of Port Hope and the settlements lying immediately to the north have been visited periodically by disastrous floods’. A 1929 flood on the Ganaraska River, for example, had caused \$250,000 worth of damage.
72. Richardson, p. vi.
73. *ibid.* p. xviii.
74. Ganaraska Region Conservation Authority, *op cit.*

Copyright of International Journal of Regional & Local Studies is the property of Dr. Philip Swan and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.