VISUAL FORCE

The phenomenon of visual force is an illusion or sensation of movement created by a static image, object, or the juxtaposition of a number of elements in a composition or landscape. When we look at a landscape our eyes are subconsciously reacting to the visual forces present generated as a result of the various directions, shapes and lines produced by the landform. We are led around the landscape in a dynamic way. Obvious lines such as a sinuous road or a meandering river invite us to follow them with our eyes.

It has been widely observed that the eye tends to be drawn down spurs, ridges and convex landforms and up into hollows, valleys and concave landforms. This holds true for all but the flattest landform. Normally a hierarchy exists so that it is possible to analyze a landscape in terms of strong visual forces flowing down major ridges or up deeper concavities with lesser forces related to less important features.

These lines of force are powerful. Therefore, any plane or line superimposed on a landform, with shape, position and direction conflicting with the underlying landform, will create unresolved tension which is likely to have a disruptive effect. This is the case where a clear cut is positioned in a way which interrupts the line of force down a ridge and whose direction conflicts with that of the line of force (see tension). Once we understand how these forces work, it is possible to work with them by ensuring that shapes are designed to be compatible and to respond to the landform. This is achieved by devising shapes whose edges rise up into hollows and descend on ridges.

Ploughed and planted rows of trees seem pushed outward by the rock outcrop to the left. Wales.

This pattern produces a strong sensation of twisting into the heart of the composition.

The forest is strongly related to the valleys in similar fashion to visual force lines in the landscape. Yosemite National Park, USA.

Visual forces operating in different ways: a sideways movement compressing the black stripes, a downward force stretching and compressing the stripes, the stripes being forced apart, and movement cutting through the stripes - less responsive or harmonious compared with the other three examples.
A lake down among strong landform. Hoover Dam/Lake Mead, Arizona.

The eye is drawn, bouncing from one spur to another.

The spurs appear drawn together, each into the bay opposite.

The eye is drawn downwards on the spurs.
2.3 ORGANIZATION

The ultimate visual objective in any design is to balance unity with diversity and to respect the spirit of place, the genius loci. The pattern and structure of a landscape or design results from the organization of the basic elements in their endless variations. In order to achieve these objectives, certain organizational principles need to be employed.

OBJECTIVES

Unity

Unity concerns the relationship between parts of a landscape to the whole. When it is achieved, the eye will sense the whole first and then be able to pick out the components as naturally belonging there. One of the problems of poorly designed alterations is that the results stand out obviously from the rest of the landscape by contrast of shape, size, texture or colour, for example.

Natural landscapes usually display a great deal of inherent unity because they have developed in response to the various processes and factors at work - the landform, soils, climate and so on. Where human activities are sensitive to this, for example in selecting better soils for agriculture, or building a house in a sheltered spot these seem to fit. Where this is ignored, especially when engineering or technological solutions overcome terrain or climatic problems, then unity may be lost. There is much more scope for imaginative solutions in a landscape dominated by human activities, but where the principal characteristics are natural, then the imposition of man-made forms can seem out of place, arrogant and detracting from the inherent qualities of the landscape.

The concept of design unity explored in a series of six abstractions:
1. This design uses three repeated similar shapes set against a background divided into well proportioned segments. There is rhythm and movement in the black shapes which are also tied into the composition by structural lines. This is a well unified design.
2. In this example the design is the same as 1, except that each of the main shapes has a different texture. While shape is dominant, the extra diversity and contrast of textures together with the imbalance of visual weight reduces unity.
3. The division of the background and the position of the three black shapes is out of balance so unity has been lost.
4. The three shapes are dissimilar and this removes the sense of rhythm also, losing unity.
5. The background toned areas are split 50:50 so the proportions are lost as is balance, reducing unity.
6. The positions of the black shapes have become static and lifeless. The composition is less interesting and unity is lost.
Diversity

Diversity is concerned with the variety and differences in a landscape. It occurs at a range of scales and is necessary if a scene is to hold our interest for any length of time. It can be argued that there is a basic fundamental need for diversity in order to provide stimulus and enrichment to our quality of life.

The degree of diversity found in the landscape depends on many factors. All natural life and man-made features depend to a greater or lesser extent on the soils, geology and drainage of an area. Usually where there is a greater variety of rock types and landform, a richer and more varied vegetation pattern results giving greater scope for man’s exploitation. The climate has an additional effect, there being generally less diversity in more extreme or severe climates.

There is a tendency for human activities to result in more diversity than might be found in nature which can be monotonous to a large degree. The scale over which diversity occurs needs consideration. In British Columbia, a heavily forested landscape diversity occurs at a large scale between landform types, climatic zones and forest types. This can be experienced by travelling around the Province. At a smaller scale, however, there can be a good deal of monotony within particular landscapes, for example miles and miles of solid, dense, dark lodgepole pine, or coast mountains covered with a solid, even textured green blanket. Other landscapes are more diverse at a smaller scale, for example some of the Kamloops or Okanagan landscapes with patchier forest, rocky areas and rangelands. This is another area where such diversity increases the visual absorption capability of the landscape.

Many landscapes are made too diverse and varied as a result of logging or other activities. Unity has been lost and chaotic patterns result. There is more opportunity to work in already naturally diverse forests which offer plenty of clues to the designer.

We must not forget that people also desire diversity of experience — between the urban, developed landscapes and the wild natural ones. This is part of the value of maintaining old growth areas as a contrast and refuge from the man-dominated landscape, even though these forests as scenery may not appear very diverse. By contrast, the diversity of an old growth forest is found beneath the canopy, within the structural variety and range of trees of different sizes, the undergrowth and the wildlife.

An abstract composition is sub-divided to different degrees. From the first to the fourth the increasing diversity is more interesting. By fine, the degree of variety is becoming too much so that visual chaos is beginning to occur.
A diverse landscape - river, broadleaves, conifers, man made and natural objects, fields and rocks. Columbia Gorge, Oregon, USA.

A landscape of low diversity; usually considered boring after a while. Snake River Plain, Idaho, USA.

A scene where more and more elements are added. Interest increases so that by 4. the scene is quite varied. 5. is more varied still but retains some unity, by 6. the degree of diversity is too much and becomes disruptive.
Extensive blankets of forest can be visually very monotonous. Northern B.C.

All the fellings, their shape and texture have over-diversified and fragmented this landscape which now appears chaotic and without structure. Vancouver Island, Vancouver Forest Region.

This landscape unit is locally highly diverse due to natural features and objects of disturbance such as fire and logging. Slocan Valley, Nelson Forest Region.
Spirit of the Place (*Genius loci*)

Spirit of the place or *Genius Loci*, is that quality or characteristic which makes one landscape different from any other and that is unique and individual. The concept is somewhat abstract and intangible, tending to be understood on an emotional and subconscious level. It may be, for all that, a most important attribute of a place and often can be fragile and vulnerable to changes. The location itself marks the position of the place, but the place itself consists of the totality of the natural and man made components, assembled in a unique way. It may well include the history and associations attached to the place by the people who identify with it. One of the difficult aspects of *Genius Loci* is that we may instantly sense its presence but be unable to identify precisely what has created it. That is why it can be so vulnerable. Often the essence can be drawn out by an artist or writer who understands it in an emotive or personal way yet can express it so that less sensitive people can understand. The artist Emily Carr had that flair for the landscape of British Columbia to name but one.

In natural landscapes, especially ones where human use has had little impact, the *Genius Loci* is likely to be local to areas of special landform, vegetation, water for instance. Many of the strongest areas are already protected as National or Provincial parks; some are recognized as Ministry of Forests recreation sites or as Ministry of Highways viewpoints. Certain lakes, islands, shorelines, canyons and ravines, or unique mountains come to mind. Because of the intangible nature of genius loci many areas have been damaged by insensitive logging, quarries, roads, powerlines and tourist and recreation facilities. It is important to try to identify the qualities of *Genius Loci* at the inventory stage of any landscape design project.

*Calvín Creek on Nootka Island giving a strong sense of Genius loci. Vancouver Forest Region.*

*The 3 sisters, large majestic trees, help give the Carmanah Pacific Provincial Park its special Genius Loci. Vancouver Forest Region.*

*The Genius Loci of this lake is lost by the insensitive clear cutting in the background seen as a focal view. Robson Valley, Prince George Forest Region.*
SPATIAL CUES

The first set of organizing principles are concerned mainly with the relative positions and interactions between elements in space. They are related to each other and normally a combination is present, perhaps with one principle being the more dominant.

Nearness

The nearer visual elements are positioned together the more we can see them as a group. If they are too dissimilar this can cause problems, but often this principle helps to link elements together. Seen as a group, the individuals become less important and the group becomes the element at a larger scale. This can be useful, for example, if a number of small clear cuts are scattered about they might have a chaotic effect, but if they can be grouped together the result will be more harmonious. Since in forests the canopy is normally closed when trees are near to each other, there are times when the spacing of trees, for example in selective cuts, becomes too wide to read as a canopy because the trees are not near enough to each other. This can cause problems on skylines in particular.

Separate shapes which do not read together.

Scattered, small clear cuts.

When near each other they read as a group.

The felling area on the left stands out alone whereas the 3 on the right of the view read as a group and appear to be of larger overall scale as a result.
Enclosure

When elements suggest enclosed space, we see both the element and the enclosed space as a complete form. Enclosure is achieved as a combination of the shape of the enclosing elements and their position. Open volumes are defined by enclosure. An opening in a forest, for example seen from a road or path running through it, will seem enclosed and an integral part of the forest if the relationship between the distance across the space and the height of the enclosing trees are balanced. Too big a space or too low trees and the sense of enclosure will be lost. With good design, large spaces can be broken down into apparently smaller ones by partial enclosure using retained trees and a more convoluted shape. This is useful in flatter, more rolling forests.

![Image of forest enclosure](image)

*The stands of trees enclose the fore and middle-ground spaces. Norfolk, England.*

Interlock

When elements interlock with each other they appear to become part of one another and thus form a more unified pattern. Natural, organic shapes tend to be more interlocked - the complex margins at the edges of forests are testament to this. Because regular, geometric clear cuts do not interlock with other parts of the forest, they tend to stand out more and lack unity. By designing a more interlocking shape the eye is able to pick it up as part of a wider pattern, thus restoring unity and blending the shapes into the landscape.

![Image of interlocked shapes](image)

*The first example shows two geometric planes interlocking like pieces of a jigsaw. In the second, two organic shapes similarly interlock.*
Continuity

Continuity of patterns in the landscape helps to control scale and absorb small changes within a dominant whole. Continuity, as used here, can be: 1. spatial, when a pattern extends in two or three dimensions, or 2. temporal, as observed in the growth of plants or the cycle of the seasons. In many natural patterns, the repetition of similar shapes at a range of scales is an aspect of spatial continuity helping to make sense in a landscape seen from many different positions. In a forest there is continuity in the spatial sense of the canopy spreading out in all directions and in the temporal sense of the forest having been there over a long time while the trees themselves have died and been replaced several times over. Some forest practices are perceived to break both senses: to interrupt the spatial pattern and to destroy the forest itself, to break the thread of continuity over time.

This can be solved by dealing with the landscape at a large enough scale so that spatial continuity can be built into the design and by endeavouring to plan far enough ahead that the continuity over time can be ensured.

There is continuity in the canopy of forest extending over the landscape. Continuity can be maintained by ensuring that openings are small in scale and greened up enough to blend with the rest of the canopy colour and texture (see bottom left area on photo) before further openings are created.

Continuity in space: the repetition of landform and land use across a landscape.

Year 0

Year 100

Year 200

Continuity over time: the trees change but the forest remains.

Temporal continuity: The old growth forest represents continuity over time as the trees die and are replaced, yet the forest remains.
Similarity

The more elements display similarity of shape, size, texture, colour, etc., the more we tend to connect them visually. Compatibility of shape, colour and texture are key aspects creating unity in a design. Shape is a particularly dominant variable so similarity of shape is important. Texture, for example, is less dominant. In the forest landscape, similarity of clear cut shapes with landform, vegetation patterns or natural openings is a major way of helping to absorb them into their surroundings. Similarity of shape between clear cuts is also important for unity. It is more useful to have similar shapes then identical ones - the latter are rare in nature at the scale of the landscape.

These forms are all triangular but are not similar enough, in shape or size, to seem part of a family.

The shape is the same although the pattern and texture of each triangle is different. However, the shape is more dominant so that they read as a group.

Strong similarity of shape, size and texture ensures that these forms are read as part of a group.

Figure and Ground

In most landscapes, some objects stand out as features or figures against a more general background. Usually smaller elements, fine textures, simple shapes and solid volumes tend to appear as figures. In a landscape covered by forest, a rock outcrop, a small patch of water or exposed soil from a natural slide are natural figures. A small, square clear cut or a car park might be man-made ones. Intrusive effects occur when the figure stands out too much and distracts attention as might be the case with the man-made examples. This can be mitigated by reducing the contrasts to a minimum to try to attach the figure to its background.

The triangle stands out by contrast and its strong shape from the irregular plane which is the ground.

The irregular shape appears as more of a void and the triangle remains as the figure.
STRUCTURAL ELEMENTS

The next group of principles are structural; that is, they are concerned with the way the different parts of a design fit together and are related to each other.

Balance

The equilibrium in a landscape is affected by its visual energy which is comprised of the apparent weight or strength of each part and their position in the landscape. For example, a section of forest left high up on a hillside while the area below has been felled will tend to look unbalanced and appear to want to slide down the hill. Its size, colour and position cause this. There is also a relationship between balance and symmetry. In the landscape, asymmetry is more common so that the balance between different land uses will be defined by their relative amounts in different positions. Each component will have its own visual strength of colour, texture and shape. For example, a large area of selective felling would be balanced by a small clear cut but not vice versa.

1. Two circular planes balanced in terms of size, density and position.
2. The composition is out of balance due to the sizes being different.

3. The sizes may vary but the greater density of the smaller is balanced by the lower density of the larger.
4. The variation in density means that although the elements are the same size they are unbalanced.

A small building which is physically balanced (i.e., it will not fall down) yet is visually unbalanced. This is because a) the roof is too heavy for the size of the supporting uprights, and b) the panelled area with the diagonal boarding direction leads the eye in such a way that the building looks as though it should fall over to the right. Heavier upright posts and a less dynamic paneling could restore balance.
This large clearcut slices across the bottom of the landform. The forest remaining above it appears unbalanced, top heavy and ready to slide down the slope.

Tension

Tension occurs when visual forces conflict. Most forms exert visual force to some degree. If a strong force seems to be contradicted by a weak one then tension will result. The most typical cases in the forest are the clear cuts which cut across a strong line of visual force in the landform or the roadline which breaks the skyline at an awkward point. It is possible to maintain vitality in the design while resolving the tension.

The geometry, shape and location of this former cutblock straddles lines of visual force, and the resulting tension further adds to the intrusiveness of the scene. Prince Rupert Forest Region.

We expect all the diagonal lines to fit into the corners of the rectangle. When they do not, visual tension is created.

A moving line is stopped by a dense black bar. Since the line has become compressed against it some of the tension is resolved although it is still present.

Rhythm

Similar elements repeated at related, regular or similar intervals create rhythms, especially when there is also a strong sense of direction involved. Since shape is one of the strongest variables, repeating similar shaped elements is one of the strongest ways of producing rhythm. Repeated landforms, stream valleys, natural forest shapes at the tree-line are examples of rhythms found in nature. The eye can pick up the repetition and more dynamically about the composition sensing the strength of the pattern. When following landform with the shapes of clear cuts, for example, repeating similar shapes and so on can help to create rhythms which strengthen the unity of the patterns.
1. A series of triangles repeated at the same interval: our eye runs along them picking up the interval and starts to read a rhythm.

2. Another series of triangles which clearly do not have any rhythm due to their varied positions and directions.

3. The same triangles all repeated in interval and direction create stronger rhythm than 1. because there is a clear movement from left to right.

These landforms, their repeated shapes and angles make a series of rhythms. Coast mountains north of Vancouver.

The edges of the shape made by the arrangement of points, and the denser clusters set up 'organic rhythms.'

The shapes of the forest at the upper tree line express a sense of rhythm. Prince Rupert Forest Region.

Proportion

Any design or composition is made up of a number of elements or parts of elements. The relative sizes of these, that is, the proportion in which they occur, is very important for achieving visual harmony and unity. Good proportions can be based on trial and error or on some more formal rules. In natural landscapes a simple 'rule of thirds' can be adopted. This would suggest that the landscape can be broken down into rough proportions of 1/3 to 2/3, never 50:50 or more extremes of 90:10. In this way no element is too dominant in proportion (or balance) and avoids a position where everything is the same or symmetrical. An application of this might ensure that of a forest landscape 1/3 or 2/3 should remain intact while the remaining proportion can be harvested (not necessarily all at once!). The area to be felled can be further divided using the rule of thirds into different times, different methods and so on. These are proportions viewed in perspective, not measured in plan.

In addition to the 'objective' proportioning rules such as the rule of thirds, there are socially acceptable proportions to be taken into account. For example, the proportion of a mountainside which can be logged at any one time may depend on the views of people who look at the particular landscape. The proportion may be determined by the degree to which the forested landscape is perceived as being able to accept change without a fundamental loss of its integrity or character. This may be influenced by its visual absorption capability, its sensitivity and the degree to which it has already been changed. This is reflected in the establishment of Visual Quality Objectives (VQO's) set at the visual landscape analysis stage of the VLM process.
In this landscape substantially more than two thirds of the visible hill has been felled while a small out of scale proportion remains unfellled on the hilltop. Bowron Lakes, Cariboo Forest Region.

Greater than \( \frac{2}{3} \) of the visible area felled is out of balance.

Around \( \frac{1}{2} \) of the area felled means neither the forest nor the opening is dominant.

Around \( \frac{1}{3} \) felled is better proportion, with the forest dominating over the opening.

Scale

Scale is related to proportion in that it involves balancing sizes and numbers of elements: between the parts of a design, with human size and with the landscape. Scale varies according to the distance of the observer to the landscape and the amount of landscape which can be seen, both in the horizontal and vertical dimensions. A landscape will appear large scale if much of it can be seen over long distances. Enclosed landscapes will seem much smaller in scale. We constantly shift our focus from the large scale down the small via the medium scale middleground. Each part of the landscape relates to the others and the foreground from one view may be the background from another. The design should be resolved at all scales. This can be achieved by using a hierarchy of scale from mountain top to valley bottom and by a hierarchy of design starting at the big scale aspects, gradually working down to the details as they fit into the larger picture.

A landscape of wide horizons and large horizontal scale.
Scale is relative to the size of the human body:
1. The stones are seen as a ground surface: texture shows up.
2. They are seen as a cluster of rocks.
3. The boulders are the same size as the person - seen as individuals.
4. The rock is larger than the person, therefore it is difficult to assess the complete form.

Scale and distance have their effects:
In the first example, the variation in shape along a woodland edge looks quite interesting. Yet from a viewpoint further away, in the second illustration, the overall impression is of a straight line with a few small scale variations along it.

The scale of this landscape is controlled by the enclosure of the trees and size of the space. Kamloops Forest Region.

At this scale space is less important than detail. Jasper National Park, Alberta.
ORDERING

The final set of principles are concerned with order in a design or landscape.

Axis

An axis is a line, either real or implied and almost invariably straight, about which elements are arranged. It is a simple yet powerful device to create spatial order and discipline. It also produces formality and is obviously man-made. Sometimes an axis is accidentally created when a straight road is built followed by, for example, logging on either side. A strong and formal result emerges which is out of keeping with the natural landscape.

An axis formed by a very straight highway. Horsefly District, Cariboo Forest Region.
Symmetry

Symmetry is also concerned with the parts of a composition and their balance. Whatever the form, the result is usually more formality. Since landform and vegetation patterns tend to be asymmetric, it is better if symmetry is avoided altogether. Accidental symmetry can occur when for example two clear cuts are of the same size, shape and position on a slope. Changing these aspects if possible will break the symmetry and relax the design.

1. Example of bilateral symmetry where the shape is repeated across the median line in one plane only.
2. Kaleidoscopic symmetry. There are three lines across which each part is reflected.

Dualistic symmetry. Our eyes try to transpose the black diamond back into the black space and vice-versa.

These two clear cut units display aspects of symmetry in their shape, size and position in the landscape. Wales.

Hierarchy

In many designs or landscapes, some elements are more important or visually more dominant than others - visual forces exhibit this, scale and proportion also. It is useful to reflect this relative importance in the landscape so that the eye is drawn first to the more dominant elements before concentrating on the lesser ones. The hierarchy of scale from mountain top to valley bottom is an example as is reflecting the major lines of visual force more strongly than the minor ones when designing a clear cut.

The city landscape shows a hierarchy from downtown high rise business district to lower rise residential beyond. Vancouver, British Columbia.
Datum

A datum is a point, or more usually a line, to which elements are spatially related or to which they refer for their position. It may be an invisible line, but since the eye can pick up such things so strongly, given a limit, so that the line may still be evident. In natural landscapes this can have an unfortunate effect. While hidden in the trees, clear cuts made along a road following a contour may all tend to start at the road and work up the hill from it for set distances. Thus the bottom and top edges of the clear cuts will pick up the line and the result will be very formal and artificial.

The eye can pick up a line along the top and bottom of the various elements. This is a strong impression. Mount Hood National Forest, Oregon, USA.

A large point (or small plane) acting as a datum around which a number of smaller points are clustered.

An implied line joining points into a structure.
Transition

Many parts of the landscape, or of a design, differ in their function, scale, the processes at work or because of the way they have developed over time. If these variations are arranged into a logical sequence then we can observe this transition from one part of the landscape to another. This is common in nature. For example, the pattern of dense forest gradually transforms into open mountain above the tree line or into a bog. If a valley bottom is a settled landscape, it is possible to allow for a more formal solution in the design of clear cuts than further up a mountainside where wilder, landform dominated patterns are more appropriate.

Transformation of shape from a circle via a square to a triangle with transitional shapes in between.

A geometric shape gradually transforms into an organic shape.

Space/mass transition: from predominantly space with little mass on the left to mostly mass with smaller amounts of space on the right.

The forest gradually gives way, transforms into the bare mountain top through lower, spaced out trees, deciduous shrubs, and herbaceous vegetation. Vancouver Forest Region.

The agriculture of the foreground gives way to the forest and then to the rocky outcrops. A clear cut can be fitted in where the agriculture abuts the forest: it becomes part of the transition. Vancouver Forest Region.