River Spey Small burn survey 2009

During July the Spey Research Trust carried out electrofishing surveys for juvenile trout on 29 small burns along the middle to lower Spey and along the coast. The aim of the surveys was to collect data on the distribution and broad abundance of juvenile trout in small burns that had not been previously surveyed. These small burns have generally been ignored in the past as they have not been considered large enough for salmon, however, they are potentially very important for spawning trout. Due to their size they often suffer from poor land use practices so it is important that they are properly surveyed and can be given due management and protection. Other Fisheries Trusts in the MFSTP are also carrying out similar surveys to help build up a better understanding of the importance and vulnerability of these peripheral waterways around the Moray Firth.

The surveys were carried out using the ten minute timed method following the SFCC standard protocol although only a broad habitat assessment was undertaken. All fry and parr were counted, the parr were then measured and representative tissue samples were taken.

1. 2009 Survey data

The results have been summarised in GIS maps to help with interpretation, Map 1 shows the fry data and Map 2 the parr data. The sites where fry or parr were absent have been highlighted by a black star to illustrate key areas of concern. One year's worth of timed electrofishing data can only show limited information about juvenile density so each site has been classified either as low or good. The data was divided into these groups according to a quantile classification which equally divides the data into groups (Table 1). Therefore the division of these groupings only applies to this small collection of burns and should not be applied to other surveys. Repeated and more extensive surveys will enable more in depth analysis and conclusions.

Table 1. The classification of the timed electrofishing data 2009.

Fry		Per minute		Parr		Per Minute
	Absent	0			Absent	0
	Low	0 - 1.1			Low	0 - 0.5
	High	1.1 - 8.6			High	0.5 - 2.0

From the 46 sites surveyed on 29 burns, only 5 sites had no trout and there were only 2 burns with no trout at all. This not only highlights how widely distributed trout are in the system but it also illustrates the broad range of habitats and conditions they can tolerate. Many of the burns that did contain trout had poor habitat. It is also worth noting that despite these burns being small and never previously surveyed 22 of the sites contained either salmon fry or parr. Of particular note was the Red Burn which contained salmon fry at 3 separate sites with significant density at the middle section to produce 6.1 fry per minute of electrofishing.

1.1. Coastal Burns

The distribution of fry within the system is fairly even although there are some noteable areas of high and low abundance as well as absence. Of particular concern are the coastal burns, Drainer, Tynett, Gollachy and Rathven at all of which fry is absent or only present in low numbers. Some of these like the Drainer Burn had very poor fry habitat while the Tynett Burn actually had good habitat at both sites but no fry. Parr were also low in all of the coastal burns apart from the Rathven which supported good numbers at the site nearest the coast.

1.2. Coast to Aberlour

Between the coast and Aberlour both the Red Burn and the Grabity had good numbers of fry but was low for parr which are absent at the middle Red Burn site. This appears to be a direct reflection of the habitat, the Red Burn has excellent fry habitat being dominated by gravels but lacks larger rocks and bankside cover for parr.

1.3. Aberlour to Grantown

Between Aberlour and Grantown the overall pattern is very varied with some burns supporting no trout and others supporting good fry and parr. There are 2 burns that didn't contain any trout, the Duar Burn and the Inveravon or Slack Burn. This is probably due to the habitat in the Duar Burn which suffered from poor bankside and instream cover and low flow. However, the Inveravon had moderate cover and good in stream habitat so further investigation will be required. Despite the Green Burn having good to moderate cover it only contained low numbers of fry and no parr. The upper 2 sites were above the impassable distillery but given the habitat the lower site should have supported better numbers. The Knockando and Marypark burns both had excellent parr habitat but contained no parr while the fry were low in the Knockando good in the Marypark. The Advie burn had excellent fry and parr habitat at both sites and this was reflected with good parr along its length. The Fry however were good at the lower site and low at the higher site. The Congash had good habitat but only contained low parr numbers but good fry numbers.

1.4. Grantown to Aviemore

From Grantown to Aviemore the Burns generally support better numbers of parr than fry. The Auchernack had good cover at both sites and which was reflected by good parr but fry numbers are low at both sites despite good spawning gravel at the top site. The Allt Mhor had high fry and parr numbers at the upper site where the habitat was good for both for fry and parr but only supported low fry and parr at the lower site despite there being good parr cover. The Mallachie only contained low fry at the upper site but low fry and no parr at the lower site. The Craigowrie had low fry and parr at the bottom site but the parr was good and the fry low at the upper site where there was better bankside cover for parr. The Milton Burn had high fry and parr at the upper site where there was excellent parr habitat but low fry and parr at the lower despite parr habitat still being good.

1.5. Avon

Of the 5 sites on the Avon, in 5 different burns, 3 contained no fry on the Allt na Ha, Allt na Glander and Allt na Muc, while the Balnellan had good fry and the the Milton low densities. In contrast all the burns contained parr and 3 of the sites contained high densities.

1.6. Livet

The burns on the Livet had relatively good numbers of parr and fry. A noteable exception was the Nevie which was absent of parr and only contained very low numbers of fry mainly due to poor habitat. The Allt Dregnie, Cartach and Culraggie all contained high numbers of parr while the fry numbers were high in the Allt Dregnie and lower Cartach site but low in the higher site and absent in Culraggie Burn.

2. Previous River Spey Electrofishing Data: 1989-2004

To provide a longer term and larger scale perspective of trout in the catchment all the previous juvenile surveys in the Spey catchment from 1989-2004 have been compiled together and the average abundance of fry and parr calculated for each site. This data is based on single fishing depletion data collected by the Spey Research Trust which gives more accurate densities than timed electrofishing. The data has been represented on GIS maps where the results have been divided into three categories, absent, low and good. The categories have again been based on a quantile approach which divides the observations into equal groups (See Table 2).

Table 1. The classification of the depletion electrofishing data 1989-2004.

Fry		Fry m^{-2}		Parr		Parr m^{-2}
	Absent	0			Absent	0
	Low	0 – 0.086			Low	0 – 0.068
	High	0.086 – 3.02			High	0.068 – 0.75

2.1. Coastal burns

Both the Cullen and Buckie burns support trout fry and parr but the Pottie Burn has no trout. The Buckie burn supports good fry and good parr in its upper section but the lower section is good for fry but poor for parr. The Cullen is poor for fry at both sites and good for parr at the lower but poor at the upper. This is significantly better than the 2009 survey which found the other smaller coastal burns to be generally missing fry and low in parr numbers.

2.2. Coast to Aberlour

The historical data shows the section between the coast and Aberlour to be generally good for fry and parr with most densities in the good category. An exception being the Fochabers burn which has supported moderate to good fry while only low to absent parr densities.

2.3. Fiddich

The Fiddich has been particularly good for fry maintaining an average good density at all sites. It is also a good area for parr but apart from the Corrie Burn which has yielded no fry or parr which is a good indication that the dam just down stream is impassable to trout.

2.4. Aberlour to Grantown

The historical data shows this is a particularily productive section of the catchment for both trout fry and parr which are generally in good densities. A burn that is notably lower than the rest is the Pitchroy where fry are low at every site and parr are low at all but one site. The Allt a' Chuaich is notably low for fry with the upper sight being absent while parr are good at the lower site and low at the upper.

2.5. Livet

The Livet has excellent fry densities with all four sites falling into the good category while only one site was low for parr at the bottom of the Tervie.

2.6. Avon

The upper Avon is fairly mixed with regard to fry and parr densities with an equal split of good and poor sites. Of not the upper Conglass site has no fry but good parr while the lower site is good for both fry and parr. The Burn of Brown and the A' Lomadaih at the top of the Lochy are absent of fry and parr and the site on the Lochy is also low for fry and parr.

2.7. Nethy

The Nethy is good tributary for fry with nearly all the sites being in the good category but is generally low for parr. Of note is the upper site on the Duack burn which has no fry or parr.

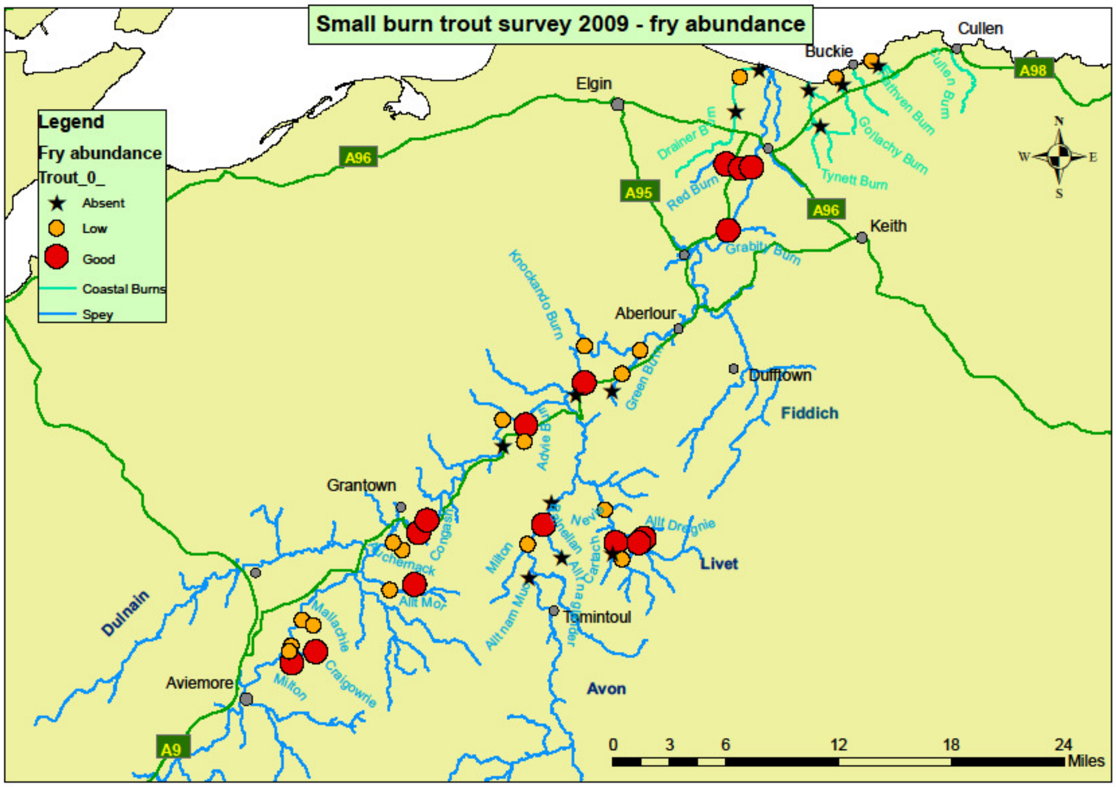
2.8. Dulnain

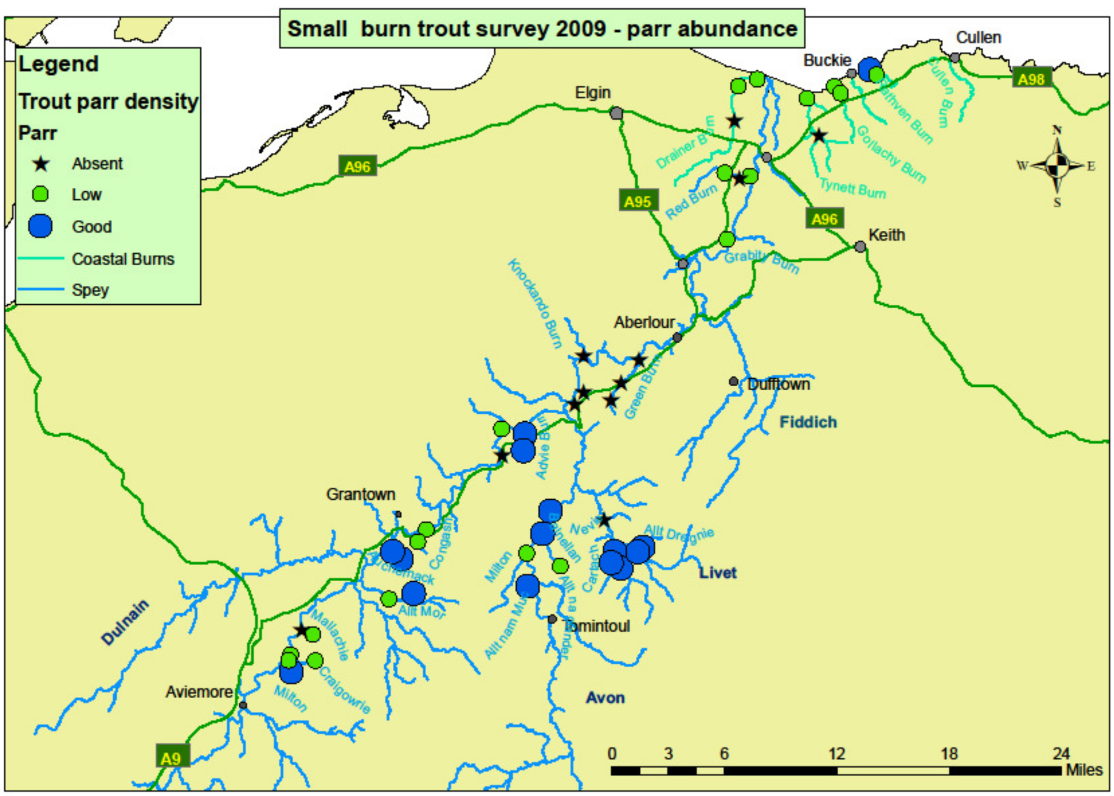
The Dulnain has an almost identical pattern of fry and parr distribution and density; ranging from some low sites on the main stem to mainly good densities in the middle tributries and upper reaches. The upper site on the Batten burn has never recorded any fry or parr.

2.9. Above Aviemore

Above Aviemore trout populations are generally resident trout and fry and parr densities are generally less than through the rest of the system. Many of the sites have recorded low densities for fry and parr although there are some exceptions where there are key brown trout populations. For example the upper Tromie has good densities of fry and parr. While some middle sites on the Feshie appear good for both trout and fry. There are also some notably good densities of both fry and parr in the Dunachton Burn south of Aviemore. There are scattering of sites through this upper section where there are no fry or parr but a particular area that is lacking both fry and parr and likely any trout is the lower section of the Truim just before it meets the Spey.

Maps.


Small burn trout survey 2009 - fry abundance
Legend
Fry abundance
Trout_0_
Absent
Low
Good
Coastal Burns
Spey
Cullen
Buckie
Elgin
A98
A96
A95
Keith
Aberlour
Dufftown
Fiddich
Grantown
Livet
Tomintoul
Dulnain
Aviemore
Avon
A9
Drainer Burn
Red Burn
Tynett Burn
Gollachy Burn
Rathven Burn
Cullen Burn
Grabily Burn
Knockando Burn
Green Burn
Advie Burn
Congash
Allt Mor
Allt Dregnie
Mallachie
Craigowrie
Milton
0 3 6 12 18 24 Miles


Small burn trout survey 2009 - parr abundance
Legend
Trout parr density
Parr
Absent
Low
Good
Coastal Burns
Spey
Cullen
Buckie
Elgin
A98
A96
A95
Keith
Aberlour
Dufftown
Fiddich
Grantown
Livet
Tomintoul
Dulnain
Aviemore
Avon
A9
Drainer Burn
Red Burn
Tynett Burn
Gollachy Burn
Rathven Burn
Cullen Burn
Grabily Burn
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Allt Mor
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Mallachie
Craigowrie
Milton
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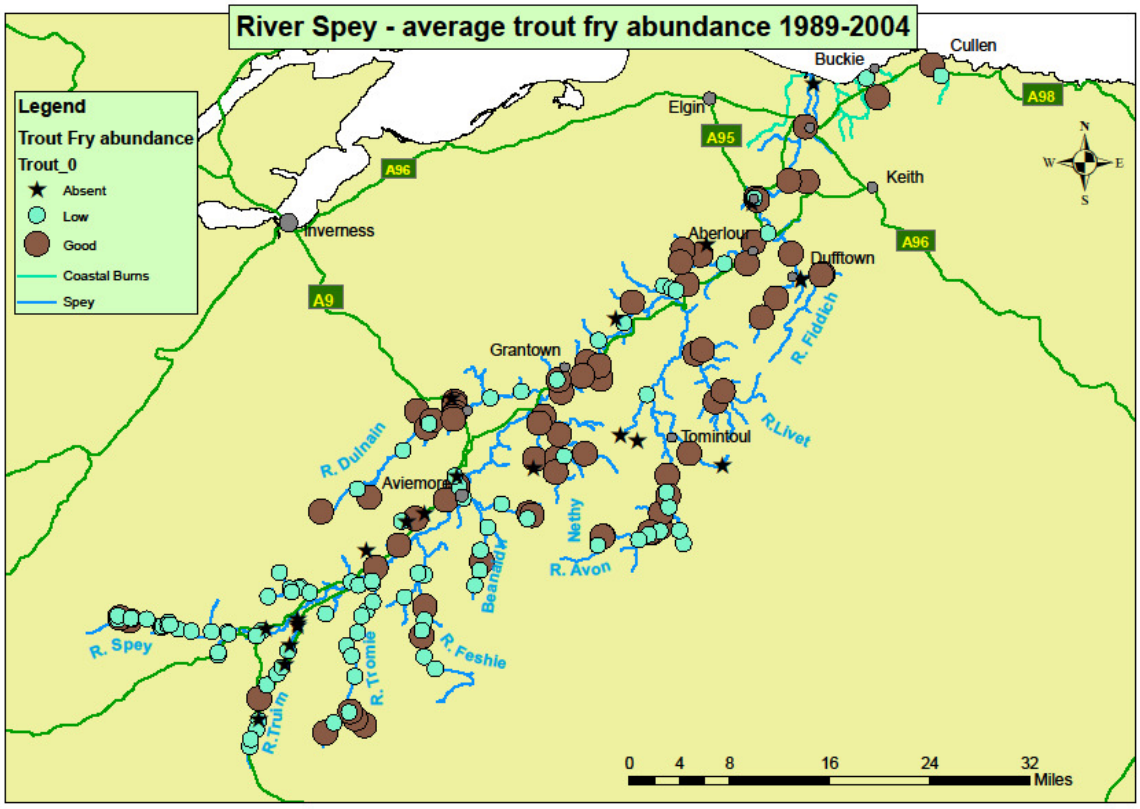
River Spey - average trout fry abundance 1989-2004
Legend
Trout Fry abundance
Trout_0
Absent
Low
Good
Coastal Burns
Spey
Buckie
Cullen
Elgin
A98
A95
A96
Keith
Inverness
Aberlour
Dufftown
A9
Grantown
R. Fiddich
R. Livet
Tomintoul
R. Dulnain
Aviemore
Nethy
R. Avon
Beaniedh
R. Feshie
R. Spey
R. Tromie
R. Truim
0 4 8 16 24 32
Miles
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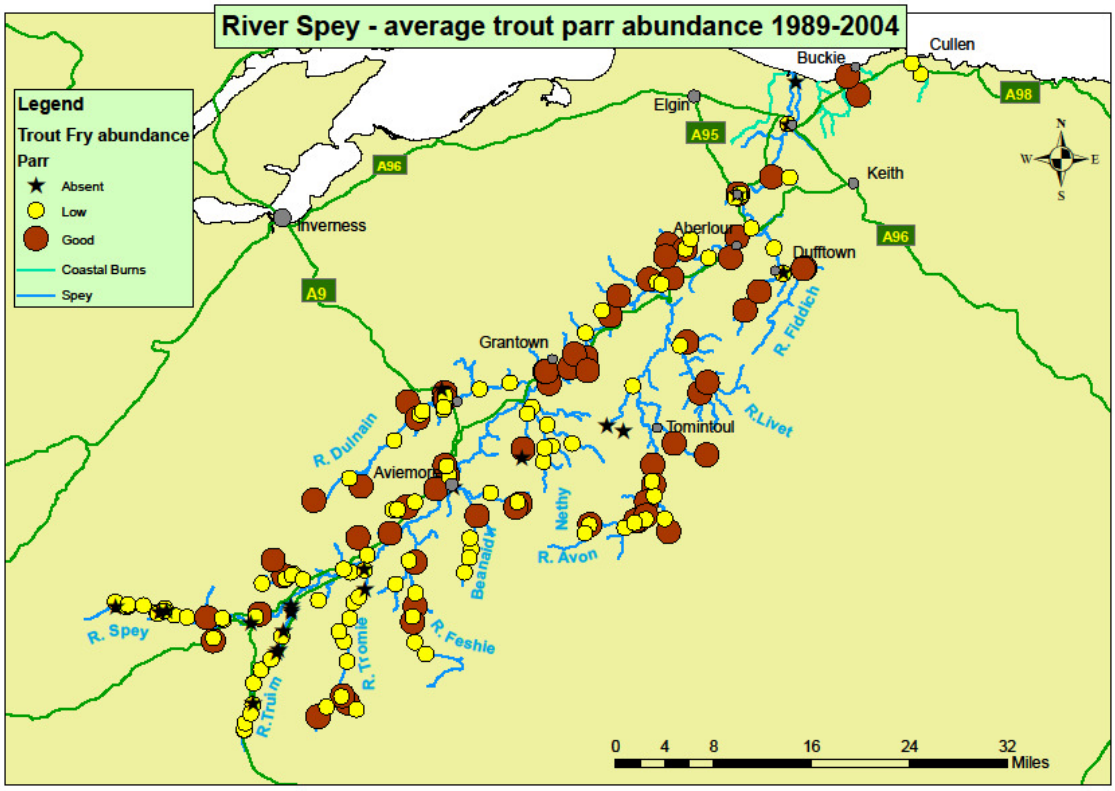
River Spey - average trout parr abundance 1989-2004
Legend
Trout Fry abundance
Parr
Absent
Low
Good
Coastal Burns
Spey
Buckie
Cullen
Elgin
A98
A95
A96
Keith
Inverness
Aberlour
Dufftown
A9
Grantown
R. Fiddich
R. Livet
Tomintoul
R. Dulnain
Aviemore
Nethy
R. Avon
Beaniedh
R. Feshie
R. Spey
R. Tromie
R. Truim
0 4 8 16 24 32
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